OMB Number: 2030-0020
Expiration Date: 06/30/2024

Preaward Compliance Review Report for All Applicants and Recipients Requesting EPA Financial Assistance

Note: Read Instructions before completing form.

I. A. Applicant/Recipient (Name, Address, City, State, Zip Code)

Name: City of Fort Collins

Address: 222 Laporte Avenue
PO BOX 580

City: Fort Collins

State: CO: Colorado Zip Code: 80522-0520

B. DUNS No. 0783625970000

II. Is the applicant currently receiving EPA Assistance? ☒ Yes ☐ No

III. List all civil rights lawsuits and administrative complaints pending against the applicant/recipient that allege discrimination based on race, color, national origin, sex, age, or disability. (Do not include employment complaints not covered by 40 C.F.R. Parts 5 and 7.)

Jamel Adkins filed a lawsuit alleging that City of Fort Collins police officers made unlawful stops of Mr. Adkins and that the stops were motived by racial discrimination. Mr. Adkins is African American. Mr. Adkins is acting pro se. Mr. Adkins has not paid the court filing fee and it's likely the court will soon dismiss the lawsuit.

IV. List all civil rights lawsuits and administrative complaints decided against the applicant/recipient within the last year that allege discrimination based on race, color, national origin, sex, age, or disability and enclose a copy of all decisions. Please describe all corrective actions taken. (Do not include employment complaints not covered by 40 C.F.R. Parts 5 and 7.)

There are no civil rights lawsuits decided against the City or any of its service areas that fall into this category.

V. List all civil rights compliance reviews of the applicant/recipient conducted by any agency within the last two years and enclose a copy of the review and any decisions, orders, or agreements based on the review. Please describe any corrective action taken. (40 C.F.R. § 7.80(c)(3))

There are none.

VI. Is the applicant requesting EPA assistance for new construction? If no, proceed to VII; if yes, answer (a) and/or (b) below.

☐ Yes ☒ No

a. If the grant is for new construction, will all new facilities or alterations to existing facilities be designed and constructed to be readily accessible to and usable by persons with disabilities? If yes, proceed to VII; if no, proceed to VI(b).

☐ Yes ☒ No

b. If the grant is for new construction and the new facilities or alterations to existing facilities will not be readily accessible to and usable by persons with disabilities, explain how a regulatory exception (40 C.F.R. 7.70) applies.

VII. Does the applicant/recipient provide initial and continuing notice that it does not discriminate on the basis of race, color, national origin, sex, age, or disability in its program or activities? (40 C.F.R 5.140 and 7.95) ☒ Yes ☐ No

a. Do the methods of notice accommodate those with impaired vision or hearing? ☒ Yes ☐ No

b. Is the notice posted in a prominent place in the applicant's offices or facilities or, for education programs and activities, in appropriate periodicals and other written communications? ☒ Yes ☐ No

c. Does the notice identify a designated civil rights coordinator? ☒ Yes ☐ No

VIII. Does the applicant/recipient maintain demographic data on the race, color, national origin, sex, age, or handicap of the population it serves? (40 C.F.R. 7.85(a)) ☒ Yes ☐ No

IX. Does the applicant/recipient have a policy/procedure for providing access to services for persons with limited English proficiency? (40 C.F.R. Part 7, E.O. 13166) ☒ Yes ☐ No

X. If the applicant is an education program or activity, or has 15 or more employees, has it designated an employee to coordinate its compliance with 40 C.F.R. Parts 5 and 7? Provide the name, title, position, mailing address, e-mail address, fax number, and telephone number of the designated coordinator.

Claudia Maria Menendez, Equity and Inclusion Officer
City Manager's Office
PO Box 580
Fort Collins, CO 80522
cmenendez@fcgov.com
970-232-0512

XI. If the applicant is an education program or activity, or has 15 or more employees, has it adopted grievance procedures that assure the prompt and fair resolution of complaints that allege a violation of 40 C.F.R. Parts 5 and 7? Provide a legal citation or Internet Address for, or a copy of, the procedures.

Title VI and ADA/Section 504: https://www.fcgov.com/legal/non-discrimination
EEO: https://www.fcgov.com/jobs/

For the Applicant/Recipient

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law. I assure that I will fully comply with all applicable civil rights statutes and EPA regulations.

A. Signature of Authorized Official	B. Title of Authorized Official	C. Date
Jason Komes	Senior Environmental Specialist	03/23/2022

For the U.S. Environmental Protection Agency

I have reviewed the information provided by the applicant/recipient and hereby certify that the applicant/recipient has submitted all preaward compliance information required by 40 C.F.R. Parts 5 and 7; that based on the information submitted, this application satisfies the preaward provisions of 40 C.F.R. Parts 5 and 7; and that the applicant has given assurance that it will fully comply with all applicable civil rights statures and EPA regulations.

A. *Signature of Authorized EPA Official	B. Title of Authorized Official	C. Date

*** See Instructions**

Instructions for EPA FORM 4700-4 (Rev. 06/2014)

General. Recipients of Federal financial assistance from the U.S. Environmental Protection Agency must comply with the following statutes and regulations.
Title VI of the Civil Rights Acts of 1964 provides that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. The Act goes on to explain that the statute shall not be construed to authorize action with respect to any employment practice of any employer, employment agency, or labor organization (except where the primary objective of the Federal financial assistance is to provide employment). Section 13 of the 1972 Amendments to the Federal Water Pollution Control Act provides that no person in the United States shall on the ground of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under the Federal Water Pollution Control Act, as amended. Employment discrimination on the basis of sex is prohibited in all such programs or activities. Section 504 of the Rehabilitation Act of 1973 provides that no otherwise qualified individual with a disability in the United States shall solely by reason of disability be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. Employment discrimination on the basis of disability is prohibited in all such programs or activities. The Age Discrimination Act of 1975 provides that no person on the basis of age shall be excluded from participation under any program or activity receiving Federal financial assistance. Employment discrimination is not covered. Age discrimination in employment is prohibited by the Age Discrimination in Employment Act administered by the Equal Employment Opportunity Commission. Title IX of the Education Amendments of 1972 provides that no person in the United States on the basis of sex shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance. Employment discrimination on the basis of sex is prohibited in all such education programs or activities. Note: an education program or activity is not limited to only those conducted by a formal institution. 40 C.F.R. Part 5 implements Title IX of the Education Amendments of 1972. 40 C.F.R. Part 7 implements Title VI of the Civil Rights Act of 1964, Section 13 of the 1972 Amendments to the Federal Water Pollution Control Act, and Section 504 of The Rehabilitation Act of 1973. The Executive Order 13166 (E.O. 13166) entitled; "Improving Access to Services for Persons with Limited English Proficiency" requires Federal agencies work to ensure that recipients of Federal financial assistance provide meaningful access to their LEP applicants and beneficiaries.

Items "Applicant" means any entity that files an application or unsolicited proposal or otherwise requests EPA assistance. 40 C.F.R. §§ 5.105, 7.25. "Recipient" means any entity, other than applicant, which will actually receive EPA assistance. 40 C.F.R. §§ 5.105, 7.25. "Civil rights lawsuits and administrative complaints" means any lawsuit or administrative complaint alleging discrimination on the basis of race, color, national origin, sex, age, or disability pending or decided against the applicant and/or entity which actually benefits from the grant, but excluding employment complaints not covered by 40 C.F.R. Parts 5 and 7. For example, if a city is the named applicant but the grant will actually benefit the Department of Sewage, civil rights lawsuits involving both the city and the Department of Sewage should be listed. "Civil rights compliance review" means any review assessing the applicant's and/or recipient's compliance with laws prohibiting discrimination on the basis of race, color, national origin, sex, age, or disability. Submit this form with the original and required copies of applications, requests for extensions, requests for increase of funds, etc. Updates of information are all that are required after the initial application submission. If any item is not relevant to the project for which assistance is requested, write "NA" for "Not Applicable." In the event applicant is uncertain about how to answer any questions, EPA program officials should be contacted for clarification. * Note: Signature appears in the Approval Section of the EPA Comprehensive Administrative Review For Grants/Cooperative Agreements & Continuation/Supplemental Awards form.

EPA KEY CONTACTS FORM

OMB Number: 2030-0020
Expiration Date: 06/30/2024

Authorized Representative: *Original awards and amendments will be sent to this individual for review and acceptance, unless otherwise indicated.*

Name: Prefix: | First Name: Jason | Middle Name:
Last Name: Komes | Suffix:
Title: Senior Environmental Specialist

Complete Address:

Street1: 222 Laporte Avenue
Street2: PO Box 580
City: Fort Collins | State: CO: Colorado
Zip / Postal Code: 80522-0580 | Country: USA: UNITED STATES
Phone Number: 970-416-4235 | **Fax Number:**
E-mail Address: jkomes@fcgov.com

Payee: *Individual authorized to accept payments.*

Name: Prefix: | First Name: Wendy | Middle Name:
Last Name: Bricher | Suffix:
Title: Financial Analyst

Complete Address:

Street1: 222 Laporte Avenue
Street2: PO Box 580
City: Fort Collins | State: CO: Colorado
Zip / Postal Code: 80522-0580 | Country: USA: UNITED STATES
Phone Number: 970-221-6506 | **Fax Number:**
E-mail Address: wbricher@fcgov.com

Administrative Contact: *Individual from Sponsored Programs Office to contact concerning administrative matters (i.e., indirect cost rate computation, rebudgeting requests etc).*

Name: Prefix: | First Name: Jason | Middle Name:
Last Name: Komes | Suffix:
Title: Senior Environmental Specialist

Complete Address:

Street1: 222 Laporte Avenue
Street2: PO Box 580
City: Fort Collins | State: CO: Colorado
Zip / Postal Code: 80522-0580 | Country: USA: UNITED STATES
Phone Number: 970-416-4235 | **Fax Number:**
E-mail Address: jkomes@fcgov.com

EPA Form 5700-54 (Rev 4-02)

EPA KEY CONTACTS FORM

Project Manager: *Individual responsible for the technical completion of the proposed work.*

Name: Prefix: | First Name: Cassie | Middle Name:

Last Name: Archuleta | Suffix:

Title: Air Quality Program Manager

Complete Address:

Street1: 222 Laporte Avenue

Street2: PO Box 580

City: Fort Collins | State: CO: Colorado

Zip / Postal Code: 80522-0580 | Country: USA: UNITED STATES

Phone Number: 970-416-2648 | **Fax Number:**

E-mail Address: carchuleta@fcgov.com

Other Attachment File(s)

*** Mandatory Other Attachment Filename:** 1234-20220323 FINAL Attachments 1-4 Complete.pdf

Add Mandatory Other Attachment | Delete Mandatory Other Attachment | View Mandatory Other Attachment

To add more "Other Attachment" attachments, please use the attachment buttons below.

Add Optional Other Attachment | Delete Optional Other Attachment | View Optional Other Attachment

Project Narrative File(s)

*** Mandatory Project Narrative File Filename:** 1235-20220322 FINAL Narrative EPA Air Monitring EJ Pro

Add Mandatory Project Narrative File | Delete Mandatory Project Narrative File | View Mandatory Project Narrative File

To add more Project Narrative File attachments, please use the attachment buttons below.

Add Optional Project Narrative File | Delete Optional Project Narrative File | View Optional Project Narrative File

BUDGET INFORMATION - Non-Construction Programs

OMB Number: 4040-0006
Expiration Date: 02/28/2022

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Year 1		$ 211,826.00	$	$	$	$ 211,826.00
2. Year 2		181,072.00				181,072.00
3. Year 3		106,241.00				106,241.00
4.						
5. Totals		$ 499,139.00	$	$	$	$ 499,139.00

Standard Form 424A (Rev. 7- 97)
Prescribed by OMB (Circular A -102) Page 1

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY (1) Year 1	(2) Year 2	(3) Year 3	(4)	Total (5)
a. Personnel	$ 72,623.00	$ 73,284.00	$ 38,298.00	$	$ 184,205.00
b. Fringe Benefits	13,586.00	13,587.00	10,226.00		37,399.00
c. Travel	8,160.00	8,160.00	8,160.00		24,480.00
d. Equipment	14,784.00				14,784.00
e. Supplies	25,177.00				25,177.00
f. Contractual	2,800.00				2,800.00
g. Construction					
h. Other	12,153.00	29,351.00	13,212.00		54,716.00
i. Total Direct Charges (sum of 6a-6h)	149,283.00	124,382.00	69,896.00		$ 343,561.00
j. Indirect Charges	62,543.00	56,690.00	36,345.00		$ 155,578.00
k. TOTALS (sum of 6i and 6j)	$ 211,826.00	$ 181,072.00	$ 106,241.00	$	$ 499,139.00
7. Program Income	$	$	$	$	$

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SECTION C - NON-FEDERAL RESOURCES

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e)TOTALS
8. Year 1	$	$	$	$
9. Year 2				
10. Year 3				
11.				
12. TOTAL (sum of lines 8-11)	$	$	$	$

SECTION D - FORECASTED CASH NEEDS

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	$ 211,826.00	$ 52,956.00	$ 52,956.00	$ 52,957.00	$ 52,957.00
14. Non-Federal	$				
15. TOTAL (sum of lines 13 and 14)	$ 211,826.00	$ 52,956.00	$ 52,956.00	$ 52,957.00	$ 52,957.00

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT

(a) Grant Program	FUTURE FUNDING PERIODS (YEARS) (b)First	(c) Second	(d) Third	(e) Fourth
16. Year 1	$ 211,826.00	$	$	$
17. Year 2		181,072.00		
18. Year 3			106,241.00	
19.				
20. TOTAL (sum of lines 16 - 19)	$ 211,826.00	$ 181,072.00	$ 106,241.00	$

SECTION F - OTHER BUDGET INFORMATION

21. Direct Charges: 343,561

22. Indirect Charges: 155,578

23. Remarks: IDC/F&A at 52% MTDC

OMB Number: 4040-0004
Expiration Date: 12/31/2022

Application for Federal Assistance SF-424

* 1. Type of Submission:	* 2. Type of Application:	* If Revision, select appropriate letter(s):
☐ Preapplication	☒ New	
☒ Application	☐ Continuation	* Other (Specify):
☐ Changed/Corrected Application	☐ Revision	

* 3. Date Received:	4. Applicant Identifier:
03/23/2022	

5a. Federal Entity Identifier:	5b. Federal Award Identifier:
City of Fort Collins	

State Use Only:

6. Date Received by State:	7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name:	Fort Collins, City of

* b. Employer/Taxpayer Identification Number (EIN/TIN):	* c. Organizational DUNS:
84-6000587	0783625970000

d. Address:

* Street1:	222 Laporte Avenue
Street2:	
* City:	PO Box 580
County/Parish:	Larimer
* State:	CO: Colorado
Province:	
* Country:	USA: UNITED STATES
* Zip / Postal Code:	80522-0580

e. Organizational Unit:

Department Name:	Division Name:
Environmental Services	Air Quality

f. Name and contact information of person to be contacted on matters involving this application:

Prefix:		* First Name:	Jason
Middle Name:			
* Last Name:	Komes		
Suffix:			

Title:	Senior Environmental Specialist

Organizational Affiliation:

* Telephone Number:	970-416-4235	Fax Number:	

* Email:	jkomes@fcgov.com

Application for Federal Assistance SF-424

*** 9. Type of Applicant 1: Select Applicant Type:**

C: City or Township Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

Environmental Protection Agency

11. Catalog of Federal Domestic Assistance Number:

66.034

CFDA Title:

Surveys, Studies, Research, Investigations, Demonstrations, and Special Purpose Activities Relating to the Clean Air Act

*** 12. Funding Opportunity Number:**

EPA-OAR-OAQPS-22-01

* Title:

Enhanced Air Quality Monitoring for Communities

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

Add Attachment | Delete Attachment | View Attachment

*** 15. Descriptive Title of Applicant's Project:**

Enhancing Monitoring of Air Toxics and Air Quality Education in Underserved Communities in Northern Colorado

Attach supporting documents as specified in agency instructions.

Add Attachments | Delete Attachments | View Attachments

Application for Federal Assistance SF-424

16. Congressional Districts Of:

* a. Applicant: co-002 * b. Program/Project: co-002

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment | Delete Attachment | View Attachment

17. Proposed Project:

* a. Start Date: 11/01/2022 * b. End Date: 10/31/2025

18. Estimated Funding ($):

* a. Federal	499,139.00
* b. Applicant	0.00
* c. State	0.00
* d. Local	0.00
* e. Other	0.00
* f. Program Income	0.00
* g. TOTAL	499,139.00

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

☐ a. This application was made available to the State under the Executive Order 12372 Process for review on .

☐ b. Program is subject to E.O. 12372 but has not been selected by the State for review.

☒ c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**

☐ Yes ☒ No

If "Yes", provide explanation and attach

Add Attachment | Delete Attachment | View Attachment

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

☒ ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: * First Name: Jason

Middle Name:

* Last Name: Komes

Suffix:

* Title: Senior Environmental Specialist

* Telephone Number: 970-416-4235 Fax Number:

* Email: jkomes@fcgov.com

* Signature of Authorized Representative: Jason Komes * Date Signed: 03/23/2022

Manifest for Grant Application # GRANT13579406

Grant Application XML file (total 1):

1. GrantApplication.xml. (size 23063 bytes)

Forms Included in Zip File(total 6):

1. Form ProjectNarrativeAttachments_1_2-V1.2.pdf (size 16029 bytes)

2. Form SF424_3_0-V3.0.pdf (size 24230 bytes)

3. Form SF424A-V1.0.pdf (size 23171 bytes)

4. Form EPA4700_4_3_0-V3.0.pdf (size 23079 bytes)

5. Form OtherNarrativeAttachments_1_2-V1.2.pdf (size 15911 bytes)

6. Form EPA_KeyContacts_2_0-V2.0.pdf (size 37314 bytes)

Attachments Included in Zip File (total 2):

1. OtherNarrativeAttachments_1_2 OtherNarrativeAttachments_1_2-Attachments-1234-20220323 FINAL Attachments 1-4 Complete.pdf application/pdf (size 4523741 bytes)

2. ProjectNarrativeAttachments_1_2 ProjectNarrativeAttachments_1_2-Attachments-1235-20220322 FINAL Narrative EPA Air Monitring EJ Proposal.pdf application/pdf (size 381309 bytes)

RFA EPA-OAR-OAQPS-22-01

Project Title:
Enhancing Monitoring of Air Toxics and Air Quality Education in Underserved Communities in Northern Colorado

Applicant Information:
Organization: City of Fort Collins, Environmental Services Department, P.O. 580, Fort Collins, CO 80522-0580
Primary Contact: Cassie Archuleta, City of Fort Collins Air Quality Program Manager
Phone#: 970-416-2648; Email: Carchuleta@fcgov.com
DUNS Number: 0783625970000

Set-Aside: No Set-Aside

Brief Description of Applicant Organization:
The City of Fort Collins is the largest city in Larimer County with nearly 170,000 residents, 8,000 businesses, and numerous institutional and community partners. The City's mission is to deliver exceptional service to an exceptional community that includes objectives to "Advance equity for all, leading with race, so that a person's identity or identities is not a predictor of outcomes" and to "Improve indoor and outdoor air quality". The City has a successful history of working regionally with Larimer County, the Colorado Department of Public Health and Environment (CPDHE), and Colorado State University (CSU), engaging in participatory community and organizational planning to guide decision-making including air quality planning and monitoring.

Project Partners:
- Colorado State University, Department of Atmospheric Science; Emily Fischer & Jeffrey Collett, Jr.
- Colorado State University Center for Environmental Justice; Mindy Hill
- Larimer County Department of Health and Environment; Lea Schneider
- The Colorado Department of Public Health and Environment; Gordon Pierce
- Community Organizations (see Attachment 3 – Letters of Support)

Project Location: Air toxics monitoring will be implemented at high priority sites in Northern Colorado focusing on areas in Larimer County and western Weld County

Air Pollutant Scope: Hazardous Air Pollutants

Budget Summary:

EPA Funding Requested	Total Project Cost
$499,139	$499,139

Project Period: Anticipated November 1, 2022 – October 31, 2025

Short Project Description: The North Front Range of Colorado is home to growing population centers and to rapidly expanding oil and gas production. The Denver/Metro North Front Range region is also designated as serious nonattainment for ozone (O_3) and will soon be downgraded to severe status. Community concerns are mounting about the adequacy of existing monitoring data networks to identify potential air quality issues, and the ability of local governments to characterize and address risks. Additionally, climate change is exacerbating these issues along the Northern Colorado Front Range, particularly for Latinx residents, children living near the poverty level, and residents with asthma, diabetes, fair or poor health status, or lacking health insurance. This project will provide air toxic monitoring that responds to concerns of residents in underserved communities, will increase awareness of air pollution, will build a broader understanding of air quality issues through innovative approaches including story-telling and art, and will hold workshops to further empower residents to engage in policy and regulatory discussions and seeking enforcement actions if warranted.

Section 1 – PROJECT SUMMARY AND APPROACH

1A. Overall Project: Addressing the disproportionate health outcomes from air pollution requires connecting communities to enhanced air quality monitoring resources and analysis expertise, and to local and state government policy makers. The City of Fort Collins, in partnership with Colorado State University (CSU), Larimer County Department of Health and Environment (LCDHE), Colorado Department of Public Health and Environment (CDPHE) and a suite of community groups, propose to implement monitoring of select hazardous air pollutants (HAPs), aligned with efforts to inform and engage underserved residents of Northern Colorado through data sharing, and accessible relevant educational activities. The primary goals of the project are to 1) leverage local air monitoring expertise to collect, interpret, and share air toxics data that responds to community pollution concerns, 2) expand the engagement of community groups to establish monitoring priorities so they address specific emission sources or sectors and prioritize the needs of underserved residents, 3) increase awareness and understanding of air pollution and air quality data, including the impacts of air toxics exposures, 4) increase the capacity of residents to engage in policy and regulatory discussions and decisions, and 5) build trust across diverse groups.

The project team consulted with a consortium of community groups, including members of the Latinx community, via several meetings to respond to community concerns. A common concern is the close proximity of oil and gas (O&G) activities to densely populated areas, which is a well-documented regional stressor (Malin et al., 2020; Mayer et al., 2021). Residents believe current monitoring of air toxics is inadequate to protect health because the majority of studies are based on health-based standards, which often show measurements below levels of concern, and are not consistent with perceived health outcomes (Garcia-Gonzales et al., 2019). There is also evidence that toxicological and exposure science methodologies are inadequate because they are not suited to address risks associated with long-term, chronic, lower-levels of exposure to multiple air pollutants interspersed with short duration high concentration exposures that are often missed by monitoring networks (Brown et al., 2014; Goldstein et al., 2014). In addition to concerns about air toxics exposures related to O&G activities, residents feel there is 1) a lack of resources to identify sources, 2) an inability to influence regulations, and 3) there are likely other sources in underserved neighborhoods that have not been identified.

This project supports Goal 4 of EPA's Draft FY 2022-2026 Strategic Plan "Ensure Clean and Healthy Air for All Communities;" Objective 4.1: "Improve Air Quality and Reduce Localized Pollution and Health Impacts" by identifying acute and chronic air toxics issues in underserved communities, increasing community awareness of air toxics in Northern Colorado, and supporting community action to mitigate air pollution, particularly from O&G development.

To achieve the project goals, the team will implement the following tasks:

Task 1. Form a Monitoring Advisory Committee

A new Air Quality Monitoring Advisory Committee (AQ-MAC) will be formed to establish the criteria for monitor deployment and community prioritization of locations/sources of concern. Diverse representation is essential to the Advisory Committee. The committee will be composed of community members and organizations, professionals, air quality experts, and government representatives in Northern Colorado. Committee responsibilities will include establishing monitoring site criteria, reviewing findings, making recommendations to the Project Team, and liaising with constituent organizations/residents. We expect that recommendations will span topics including policy options, mitigation strategies, public messaging and outreach, and equity considerations aimed at continued improvement of air quality. This Committee will provide a critical avenue for communication and deeper partnership across government agencies and with multiple community partners. Several community groups have already expressed interest in representation on this Advisory Committee, as expressed in letters in Attachment 3. We anticipate other groups joining the effort.

Task 2. Air Toxics Monitoring

Our proposed monitoring strategy will leverage the existing air quality monitoring expertise at CSU using commercially available instrumentation to measure a suite of high-concern air toxics. We have focused our

approach on the problem of O&G development encroaching residential areas and high-occupancy buildings in Northern Colorado but will also use mobile survey techniques to identify any large, unknown sources in residential areas. Critical to our approach is the ability to 1) flexibility site instrumentation and respond rapidly to community concerns, 2) support continuous monitoring of volatile organic compounds (VOCs) to identify and characterize intermittent, transient plumes, 3) optimize limits of detection to avoid erroneously underestimating exposure risk, 4) measure a wide range of compounds given hypothesized simultaneous exposure to many pollutants, and 5) identify the source of elevated air toxics through both chemical signatures and physically tracking plumes. This approach has been designed based on the recent experience of the CSU measurement team (e.g., Benedict et al., 2019 and Hecobian et al., 2019) and a critical synthesis of current peer-reviewed literature (Garcia-Gonzales et al.,2019). We focus on O&G because of community concerns, but this approach is flexible to also identify other possible sources of air toxics.

Proposed Monitoring Methodology: We will purchase a set of 2 SENSIT SPOD solar powered total VOC sensors to provide a real-time instantaneous detection of elevated VOCs using a photoionization detector (PID). CSU already owns two of these units (purchased in 2022 with newest version higher sensitivity 10.6 eV PIDs) that can also be used for this project. These SENSIT SPODs will each be configured with the ability to trigger up to 4 whole air canister samples for offline analysis via gas chromatography of >50 specific VOCs including air toxics. Whole air samples will be collected using Entech silonite-coated canisters; there are already a sufficient number of these canisters at CSU to support project needs. The SENSIT SPODs will provide real-time wind direction, wind speed, temperature and relative humidity. When paired with the total VOC observations, these can be used to narrow down possible sources of elevated air toxics.

This commercially available set-up is ideal for our community needs because it offers a continuous measurement to identify the occurrence of a plume reaching a given location, paired with targeted precision measurements of composition when needed. The accompanying canister/GC measurements can either confirm or rule out the presence of elevated concentrations of air toxics including benzene, ethyl benzene, toluene, *n*-hexane, 2,2,4-trimethylpentane, *n*-nonane, and xylenes. As our focus is on encroaching O&G activities, the ability to quantify the abundance of these compounds is absolutely critical. This suite of HAPs are emitted from O&G activities (e.g., Brantley et al., 2015; Field et al., 2015; Macey et al., 2014) and existing research implies that these species need to be prioritized for assessing community-scale exposures (McMullin et al., 2018). High concentrations of these species, greatly exceeding those present in urban industrialized areas, have been documented in rural locations with O&G activities (Eisele et al., 2016) and concentrations can fall within the range of chronic health-based exposure levels (Thompson et al., 2014). High time resolution measurements are especially critical because we have observed that plumes from O&G sources can be intermittent and changing wind directions often mean impact timescales at a neighborhood receptor site can be minutes. In addition to the whole air samples triggered by the SENSIT SPODS, we will also 1) install Entech silonite-coated canisters near each deployed SPOD with inlet flow-controllers set to sample air continuously over week-long periods to allow for the assessment of residential exposure to air toxics over longer time scales, and 2) make Entech silonite-coated canisters available to residents to self-trigger during periods where they suspect high concentrations of VOCs (i.e., in response to visible plumes, specific activities, or smells). All whole air samples will be analyzed following Benedict et al., 2018 and Hecobian et al., 2019.

The CSU mobile plume-tracker, a hybrid Chevy Tahoe, will also be deployed. Depending on priorities identified by the AQ-MAC and community concerns, use of this resource can be focused on 1) sampling short-duration, high-emission activities where it is less likely that plumes will intercept one of the fixed-location monitoring sites, 2) surveying HAPs abundances in underserved neighborhoods with no prior observations, and/or 3) pinpointing locations of sources identified by the air monitoring stations. The plume-tracker will be equipped with an Entanglement Technologies AROMA VOC analyzer. This commercial instrument combines chemical separation and laser-based cavity ring-down spectroscopy in a compact, mobile platform. It provides fast response measurements while maintaining the concentration sensitivity of gas chromatography systems and is well suited

for mobile identification of VOC plumes around O&G operations and other HAPs sources. Once a plume is identified, we will collect a grab canister for quantitative, speciated air toxics analysis by offline GC.
Site selection: The deployment of these resources will be guided by the AQ-MAC. The AQ-MAC will develop clear guidelines for prioritizing monitor distribution, and priority will be given to locations near sources that impact vulnerable and underserved populations. Data will be compiled by the project team that evaluates priority locations for monitoring based on data from EPA's EJScreen tool, Colorado EnviroScreen's interim environmental justice mapping tool, Larimer County Health Equity Index and other environmental justice data sources such as community-level or census tract health outcome (e.g., asthma, COPD, cancer) data from other CDPHE resources. This information will be presented to the AQ-MAC and residents/community organizations in these areas. Monitoring to address areas of public concern will also be solicited through general public outreach and the site prioritization criteria will be applied. We anticipate very high demand for samplers and expect them to be deployed nearly continuously.

Data Transparency: Data transparency will be a priority of this project. Data will be provided to the community in a timely way via a website linked to the City of Fort Collins and Larimer County Air Quality pages, but maintained during the project period by CSU. After the project, all content will be transferred to the City of Fort Collins. The website will include a map showing the current locations of the SENSIT SPOD monitors, when/where PID data is available, and dates and times of triggered samples. Our tentative plan is that the website will not show the raw PID data used to trigger collection of whole air samples in real time because interpreting PID data requires a detailed understanding of this technology and may be sensitive to a humidity response and non-VOC interference. However, display of raw PID output will be revisited in consultation with the AQ-MAC as the project progresses, as there has been community interest in accessibility of real-time data.

The website will also provide a map that displays where integrated (i.e. weeklong) whole air samples are being collected and have been collected throughout the project. The website will also display a simplified table of the abundance of high interest compounds (e.g., benzene) across all samples. This table will be updated approximately weekly because canister samples are typically analyzed at CSU one day per week. Data analysis, including short term briefing summaries as described below, will also be made available on the website, with the goal for the information to be clear, easily understandable, and in multiple languages.

Data Analysis Priorities: This project will provide a wealth of information valuable for short-term analysis and longer-term studies. Included in the speciated VOCs are compounds that serve as tracers of particular emission sources (e.g., O&G vs. traffic) which will be used to identify probable sources of HAPs along with meteorological data and community observations. The analysis will have several components, and can be tailored to the concerns of the AQ-MAC. The first goal will always be to identify and communicate any extremely high levels of total VOCs and air toxics with the goal of immediate action to identify a source and address any equipment problems or malfunctions. The project team will be checking PID outputs daily to ensure this. Additionally, the team at CSU will provide a summary of all sampling on a quarterly basis via community meetings and short briefings. We will revisit this plan with the AQ-MAC early in the project and iterate as needed. Longer analysis goals will be to 1) assess air toxics concentrations and compare them to existing chronic and acute exposure health guideline values, and 2) quantitatively assess contributions from traffic, O&G development, wildfires, and other sources to air toxics concentrations using multiple established source apportionment techniques. This will be the focus of a CSU graduate student.

We plan to use multiple established methods for source apportionment and expect, based on prior work from other Front Range locations, that there will be multiple contributing sources. Positive Matrix Factorization (PMF) has also successfully been used as a source apportionment technique in the Colorado Front Range (Abeleira et al., 2017; Pollack et al., 2021), and in other regions where O&G operations abut urban areas (e.g., Rutter et al., 2015).

Task 3. Community Outreach, Engagement and Air Quality Education

Outreach and education are central to this project. The overarching goals of outreach are to 1) increase awareness of the health risks of air pollution, including air toxics exposures, 2) broaden community understanding

of air quality data, and the skills to engage with policy makers, and 3) use art and storytelling to move more of our society across the bridge from awareness to action.
The air toxics monitoring will be an important and responsive public engagement tool to assist with story-telling by actively engaging community members, through the AQ-MAC, in identifying potential concerns, collecting data, and communicating what we can learn from data in real-time, following initial analysis, and from more long-term analysis. Sample analysis briefings will be iteratively improved based on feedback from the AQ-MAC, with goals of providing timely communication of accessible, understandable information on air toxics concentrations, potential health implications for nearby residents, and information on limitations in the data and existing regulatory framework to foster alignment of public expectations. Multiple channels of community engagement will be used as deemed appropriate by the members of each community including events, social media, and neighborhood apps such as Next Door. Community organization partners will share project data and communications through their own channels such as newsletters, Websites, etc.

In addition to engagement regarding air toxics monitoring, specific events and actions, there is a more general need to build a foundation of trusting relationships and enhanced understanding of air quality concerns, especially for underserved communities. In preparation for this grant application, several community discussions were held in early 2022, and it was apparent that there is a large variability in the awareness of air quality concerns across different groups. Representatives of underserved communities had not been involved in many air quality discussions previously, and suggested that storytelling and artwork are effective means of engagement. At the same time, there are members of the community in Northern Colorado who are well-versed in air quality issues. These residents are frustrated that air quality is a persistent issue and improvements have been slow. To bridge these two perspectives, we propose the following activities, including story-telling, art, and civic engagement skill- building.

CSU's Center for Environmental Justice will coordinate the engagement activities. Outreach and education efforts will utilize storytelling and public art. One main target audience will be youth, particularly those from minoritized backgrounds. Storytelling is a highly effective science communication tool (Dahlstrom, 2014), and one that allows for the co-production of information (Adamson et al., 2021). Stories also offer a way to connect across generations. In collaboration with the City of Fort Collins Equity, Diversity and Inclusion Office, the Fort Collins Community Action Network (FCCAN) and Fuerza Latina, the Center for Environmental Justice will organize and host a set of workshops. These workshops will have three different foci: 1) *Build storytelling skills among youth.* These workshops will focus on environmental and air quality storytelling, and will be modeled after previous successful events that were focused on helping those impacted by Deferred Action for Childhood Arrivals (DACA) tell their stories. 2) *Build skill sets for policy and civic engagement*. This has been identified as a need for our community and it is important because it will enable a greater swath of society to create lasting, systemic change around air quality issues in Northern Colorado. This will include information on how to effectively track air pollution observations and register concerns, including proper recording of date, time, and duration of observed variable, whether odor and/or visual, types of descriptors to use for odors/smoke/dust, and any physical symptoms. These workshops will demystify civic engagement and policy processes, include leadership training and advocacy skill-building, and address barriers to participation. 3) *Facilitate general educational and public awareness events on air pollution, health impacts, understanding air quality data, and actions that can be taken to mitigate pollution impacts that will be accessible to everyone.* The project envisions holding up to five engagement events per year.

Storytelling through art will be a very important aspect of outreach, and has been shown to be an effective communication tool with respect to air pollution (Riley, 2021). It has the potential to reach a broader swath of Northern Colorado residents and move the community to action through empathy. The region has several initiatives that will be leveraged to increase artwork related to air quality (see for example the City of Fort Collins Art in Public Places program and a new CSU Environmental Justice in the Arts series). Public art humanizes the built environment and invigorates public spaces. It provides an intersection between past, present and future, between disciplines, and between ideas. Public art is freely accessible. This project will support the development

of new public art in collaboration with the CSU Department of Art and Art History (AAH), focused on the disproportionate impacts of air quality and related community events. The goal is to build enhanced understanding of the air pollution challenges facing Northern Colorado, and motivation to pursue equitable solutions. The AHH faculty will invite a BIPOC artist, with indigenous ties to the Colorado landscape to work on an art piece to display in the community. (For more background, see: Why Public Arts Matters.)

1B. Project Significance

The North Front Range of Colorado is home to growing population centers and to rapidly expanding O&G production. From Denver north to Fort Collins, cities are growing quickly and bedroom communities are popping up in formerly rural settings. Population increases in Larimer and Weld counties have been among the fastest in Colorado, with future anticipated growth of 92% by 2045. At the same time, the Denver-Julesburg Basin has seen a virtual explosion in new O&G development, driven by improvements in hydraulic fracturing and directional drilling techniques.

The intersection of O&G development with residential communities has raised concerns about potential exposure of residents to air toxics, hazardous air pollutants known to cause cancer and other serious health impacts. In particular, elevated mixing ratios of benzene and related compounds are linked to O&G extraction (Halliday et al., 2016). While benzene has received the most attention, elevated concentrations of toluene, *n*-hexane, 2,2,4-trimethylpentane, *n*-nonane, and xylenes have also been observed near O&G activities (Brantley et al., 2015; Field et al., 2015; Macey et al., 2014) and their measurement needs to be prioritized for assessing community-scale exposures (McMullin et al., 2018). This class of air pollutants is difficult to measure quickly and continuously at a low cost. Existing monitoring networks are insufficient to meet demand, and they also cannot respond quickly enough to resident/community member concerns regarding encroaching O&G facilities. Sensitive populations, and disproportionately impacted communities (including those who are low income, housing cost-burdened, or people of color), and occupational workers may be at increased risk for health effects near O&G extraction (Rich et al., 2016). This development substantially impacts mental health when residents feel powerless to prevent nearby development due to procedural inequities and institutional barriers (Malin, 2020). Our project is designed to overcome these challenges.

The Denver/Metro North Front Range region is designated as serious nonattainment for ozone (O_3) (Flocke et al., 2020), and will soon be downgraded to severe status. Over 8.4% of adults in Larimer County diagnosed with asthma and 9.2% in Weld County (CDPHE, 2019). Climate change is exacerbating this issue, particularly for Hispanic /Latino residents, children living near the poverty level, and residents with asthma, diabetes, fair or poor health status, or lacking health insurance (Crooks et al., 2021). More specific data about inequitable outcomes for underserved populations in Northern Colorado is discussed in Section 3.0 below on Environmental Justice.

The project will serve underserved populations in Northern Colorado by providing air toxics monitoring that responds to concerns of residents, increasing residents' awareness and understanding of air pollution and air quality data, including impacts of actual and perceived air toxics exposures, increasing residents' capacity to engage in policy and regulatory discussions and decisions, and building trust across diverse groups.

Section 2 – COMMUNITY INVOLVEMENT

One of the primary goals of this project is to build a foundation of trusting relationships and enhanced understanding that can serve as a springboard to identify and remedy solutions to community air pollution problems. This project brings together local and state government, academia, underserved community representatives, and multiple community organizations interested in air pollution mitigation.

2A. Community Partnerships

Foundational to the success of this project is involvement by community partners. Attachment 3 lists the partner organizations who have committed their support and participation to achieve the project objectives focused on air toxics. The list below outlines the project team and community partners, their skills and commitments, and what they expect to gain from participation.

Project Team Roles:
City of Fort Collins - Grant management, air quality communications and data platforms, co-development and distribution of educational and outreach materials; public messaging platforms/interface
CSU Department of Atmospheric Science - Technical monitoring expertise, data analysis, data access, public facing technical presentations, co-development of educational and outreach materials
Larimer County Department of Health and Environment - Recruitment of monitoring locations; influence public policy; connections to underserved communities; facilitate community meetings, discussion groups, open houses; co-development of educational and outreach materials
CSU Environmental Justice Center -Organize community engagement events; connections to underserved communities; facilitate community meetings, discussion groups, open houses
Colorado Department of Public Health and Environment - Provide technical assistance on study design, sensor selection and placement, and community engagement; support data interpretation and development of appropriate public messaging
Community Partner Description and Roles:
Fort Collins Community Action Network - Coalitional structure crossing multiple organizations; equity and justice focused. (Note: Fuerza Latina is an affiliate of FCCAN dedicated to educating, informing, organizing, and promoting change to facilitate an improved quality of life for immigrants)
Role- Co-development of educational and outreach materials; foster connections to disproportionately impacted communities, co-host engagement events, disseminate project info, participate on AQ-MAC
Northern Colorado Medical Society - A society of over 750 physicians who advocate to improve the health and wellbeing of all people in our community
Role- Partner with programs that educate the disenfranchised populations regarding their exposures and help create a healthier world
Physicians for Social Responsibility Colorado - Mobilizes health professionals and allies to protect human life from the gravest environmental dangers to human health and survival
Role-Use their resources to educate the public on indoor and air toxics emissions from fossil fuels
Earthworks and LOGIC (League of Oil and Gas Impacted Coloradans) - Earthworks-works with communities and grassroots groups to reform government policies, improve corporate practices, influence investment decisions; LOGIC- elevates the voices of Coloradans living near current and proposed O&G operations
Role- Serve on AQ-MAC, assist with data collection, disseminate information, host events, and identify monitoring locations
League of Women Voters of Larimer County - Encourages the informed and active participation in government; works to increase understanding of public policy issues; influences public policy
Role - Contribute to education and outreach and outreach, support building trusting relationships
Sierra Club - Poudre Canyon Group - Engages Weld and Larimer County communities on environmental issues
Role- Cooperate in participatory planning, implementation, and evaluation of AQ monitoring, disseminate information, host events, network with key stakeholders, foster relationships with impacted communities
City of Fort Collins, Air Quality Advisory Board - Advises the Fort Collins City Council regarding policies, plans, and programs to improve and maintain the City's air quality
Role- Influence public policy, serve on AQ-MAC, advise Fort Collins City Council, advise on educational materials
RAQC (Regional Air Quality Planning Council) - Lead AQ planning agency for 9 county metro Denver/ NFR area
Role - Participate on AQ-MAC, host engagement events, disseminate info, develop/ distribute educational material

2B. Community Engagement

This project will seek input and guidance from impacted and interested individuals through avenues most accessible to them, including workshops. The AQ-MAC will be instrumental in project design and implementation. The project team will utilize Larimer County community connections, expertise from CSU's Environmental Justice Center, the City of Fort Collins' new Equity, Diversity and Inclusion Office and concepts from GARE's Racial Equity Toolkit to transform engagement for this project to focus on establishing better, trusted, and long-lasting relationships with community leaders and community-based organizations. The project team will proceed with a

commitment to equity principles and simultaneously acknowledge that we will also be learning throughout this process, along with our community partners.

In addition to the formal partners and the AQ-MAC discussed in Section 1A (Task 1), this project will implement ongoing engagement with the general public with a special focus on the underserved. The project will explore the use of community ambassadors to identify and engage specific communities or individual families that are highly impacted. This approach is modeled after the approach used by Our Climate Future, the City of Fort Collins' comprehensive plan to address climate, energy and waste goals while improving equity and resilience. Residents will be provided with multiple avenues for input to the AQ-MAC.

Outreach events, as described in Task 3, will be held in multiple locations throughout the project and will offer child care, food, translation and other methods of reducing barriers to participation. CSU's Center for Environmental Justice, together with the Fort Collins Community Action Network (FCCAN) and Fuerza Latina will work closely with underserved neighborhoods to understand their concerns and questions, and ensure that outreach through story-telling, art, and other avenues are accessible and culturally relevant. A website will be developed to share project data, status and summaries that is culturally and linguistically appropriate, with materials also provided in Spanish. The project will also develop materials and conduct engagement on how residents can better participate in air quality policy development. Details of the community engagement plans are further discussed in Section 1A above, under Task 3.

Future Leveraging of Project Activities -The new partnerships and increased community involvement resulting from this project will be sustained through the continuation of the AQ-MAC. Future work for this committee could include development of a regional air quality monitoring plan, to provide an overarching context for future projects and proposals. The project team will seek to identify additional funding sources to expand monitoring and/or address related needs and desires of underserved communities.

Aspects of the monitoring and data analysis will be sustained through a graduate course at CSU entitled Air Quality Characterization. This course is currently being redesigned (piloting currently in Spring 2022) to center on a service-learning project where students partner with a community to design, plan, and execute an air pollution measurement campaign over the course of a semester. Additionally, final data will continue to be publicly available through Mountain Scholar, an open access repository service and digital collections platform that provides access to digitized library collections and other scholarly works from several academic entities in Colorado.

Section 4 – ENVIRONMENTAL JUSTICE AND UNDERSERVED COMMUNITIES

This project is designed to empower residents in Northern Colorado who are experiencing income or housing insecurity, or who are suffering poorer health outcomes through 1) provision of air toxic monitoring that responds to concerns of residents, 2) increased awareness of air pollution and a broader understanding of air quality issues through innovative approaches including story-telling and art, 3) provision of workshops to empower residents to engage in policy and regulatory discussions and seek enforcement actions if warranted, and 4) building trust across diverse groups and potentially leading to the formation of broader coalitions to seek action to mitigation air toxics hazards. **If the monitoring data collected through this project reveal elevated air toxics concentrations, the local government partners in this project including CDPHE, Larimer County and City of Fort Collins, are committed to further investigation and seeking actions within the regulatory framework.**

The project directly addresses unconventional O&G development, which is a major environmental justice issue (Kroepsch et al., 2019). O&G development is encroaching on residential communities, and there is a clear disproportionate impact on the Latinx community. Latinx residents disproportionately live within a half-mile radius of O&G facilities in Colorado (Clean Air Task Force, 2016). There have been high profile cases (e.g., Extraction Facility near Bella Romero 4-8 Academy) where new O&G facilities have been moved into lower-income neighborhoods after wealthier and predominantly white communities have successfully resisted

development. Latinx residents are particularly burdened with health impacts of air pollution due to underlying higher poverty levels and lower health insurance coverage. They have also been particularly impacted by rising housing costs in the region. COVID health and economic impacts are also high in this group, and there is overrepresentation in essential and outdoor work.

Existing data identifies which geographic areas in Northern Colorado are experiencing inequitable outcomes, and in addition to EPA's EJScreen tool, there are a number of tools that we will use to prioritize efforts. Colorado EnviroScreen's interim environmental justice mapping tool identifies census block groups that meet one or more of these demographic criteria: low-income communities, communities of color, and housing cost-burdened communities. There are census block groups in south and southeast Larimer County that are housing-burdened, and blocks in East Larimer County and West Weld County that are > 40% low income. Larimer County Health Equity Index can be used to identify regions or neighborhoods in Larimer County with higher populations of potentially vulnerable community members through an equity ranking. This tool shows that more vulnerable or disadvantaged populations in Fort Collins are clustered north of the Poudre River, which transects Fort Collins, and less vulnerable populations are clustered near Downtown Fort Collins. Loveland's more vulnerable populations are centered around Loveland with the higher scoring populations located to the south and east. The City of Fort Collins Equity Indicators project indicates that the percentage of respondents who found pollution from industry to be a major problem where they live was almost 8% higher for Hispanic/Latinx respondents and non-white, non-Hispanic respondents than for respondents overall. These same populations have been impacted more significantly by COVID-19. A 2021 study by the Colorado Health Institute tracked census-level COVID-19 diagnoses in seven Denver metro counties, plus parts of Larimer and Weld. The study identified pockets of high COVID diagnoses showing up in a crescent around the north, east, and south sides of Greeley, in Weld County.

Section 4 – ENVIRONMENTAL RESULTS—OUTCOMES, OUTPUTS AND PERFORMANCE MEASURES

Expected outputs of this project include: 1) deployment of air toxics monitoring equipment in underserved communities, 2) community-specific assessments of air pollution data, 3) near real-time air quality data availability for communities and other stakeholders, 4) new partnerships and community involvement in air monitoring, 5) educational materials, workshops, and public art focused on air resources concerns and equitable solutions, and 6) all required project progress and final reports.

Expected outcomes of this project (may not all be fully achievable within an assistance agreement funding period) include: 1) identification of acute and chronic air quality issues in underserved communities, 2) increased community awareness of air toxics in northern Colorado, 3) increased access to air quality monitoring for air toxics for a wider range of communities, 4) community action to mitigate air pollution, particularly from O&G development, 5) greater public investment in local policy to reduce air toxics emissions, 6) potential mitigation actions from parties responsible for certain air pollution, 7) influence of project air pollution data on local land use planning and development for grant partners, and 8) influence of project air pollution data on state policy action for ozone State Implementation Plan.

The Project Manager will establish a metrics tracking plan and incorporate metrics updates in the quarterly progress reports to EPA. Table 1 provides a summary of the expected project outcomes, outputs and performance metrics.

Table 1. Expected project outcomes, outputs, and performance metrics

Outputs	Outcomes	Performance Measures
Near real-time air toxics data; community-specific assessments of air pollution data and data website	Identify EJ priority monitoring areas; empower underserved communities to investigate potential concerns; identify acute and chronic air quality issues	Number of sites, number of canister samples triggers/events, number of canister samples requested (through lending library); summary briefings regarding location, frequency and initial sources assessment for elevated toxics; final data and analysis report

Outputs	Outcomes	Performance Measures
Partnerships and Community involvement	Increased community engagement in AQ monitoring planning, increased awareness of abundance & impact of air toxics; increased access to air toxics data for a wider range of communities; community action to mitigate air pollution; more investment in local policy to reduce air toxics; increased connections & trust w/ gov. agencies.	Number of events; website hits; number and outcomes of citizen-initiated actions to address pollution; number and description of local government action to address elevated concentrations of air toxics; number of AQ-MAC meetings.
Educational events and materials	Workshops focused on 1) storytelling related to environmental injustices, 2) civic engagement on air issues, 3) general outreach and education on air quality fundamentals in northern Colorado. Public art events and installations.	Communication materials about air toxics pollution and risk management; Number/demographics of attendees per workshop; Number and location of public artwork

The project is slated for a 3-year period, anticipated to be from November 2022 through October 2025. Table 2 summarizes our anticipated timeline and key milestones.

Table 2. Timeframe, Milestones, Deliverables

Timeframe	Milestones	Deliverables*
Task 1: Form an Air Quality Monitoring Advisory Committee (AQ-MAC)		
Months 1-3	• Encumber funds • Finalize Subaward Agreement • Hire Project Coordinator • Form AQ-MAC	• AQ-MAC Membership List
Months 3-6	• AQ-MAC Charter • Initial site selection criteria Initial site selection	• AQ-MAC Charter • AQ-MAC Site Selection Criteria • Initial monitoring site locations
Ongoing (Months 6-36)	• Engage broader community feedback • Advise on website displays • Review Monitoring Briefs (monthly) • Revise site selection criteria and site locations as necessary (based on broader community feedback • Advise on outreach/education workshop material	• Updates to site selection criteria and locations as necessary
Task 2: Air Toxics Monitoring		
Months 1-6	• Hire graduate research assistant • Finalize SOPs • Procure equipment • Set up project data website • Initial deployment	• Project SOPs and field plans • Project website web URL
Ongoing (Months 6-30)	• Daily VOC screening • Weekly canister changes and analysis	• Website updates • Monthly data analysis reports/briefings • Public updates (open houses)
Months 30-36	• Final data analysis	• Final data analysis report • Final data presentations (AQ-MAC and community open house) • Final data to CSU digital repository/EPA

Task 3: Community Outreach, Engagement and Air Quality Education		
Months 1-12	• Preparation of materials for Workshop #1 • Workshop #1: Storytelling skills among youth • Solicit proposals for public art installation	• Workshop #1 materials • Workshop #1 attendance; feedback rept. • Selection of public art project
Months 13-24	• Preparation of materials for Workshop #2 • Workshop #2: Building Skill Sets for Quality Engagement	• Workshop #2 materials • Workshop #2 attendance; feedback rept.
Ongoing (Months 7-30)	• Semi-Annual Open House Events: General education, project updates, air quality monitoring updates, and community feedback • Development of public art installation	• Open house materials • Attendance and feedback reports
Months 30-36	• Unveiling of public art installation and final project celebration/ community event	• Final public engagement and art installation report

*In addition, quarterly reports will be made throughout the project to EPA to meet grant requirements.

Section 5 – QUALITY ASSURANCE STATEMENT - See Attachment 1.

Section 6 – PROGRAMMATIC CAPABILITY AND PAST PERFORMANCE

The City of Fort Collins has successfully administered funding for several recent projects, including:

- $1,000,000 -Bloomberg Mayors Challenge In 2018, Fort Collins was selected to receive funding to increase health and equity benefits for low to moderate-income renters by improving the energy efficiency of rental homes. Project reporting requirements were met and the resulting EPIC Home Loan program continues successfully today.
- $780,000- CDPHE's Health Disparities Grant Program - In 2019, the City of Fort Collins was funded for the Home2Health project to bring City and community stakeholders together to implement critical updates to policies affecting the quality and quantity of affordable and attainable housing, with a specific focus on reducing health inequities. The project was successfully completed in June 2021.

Recent CSU federally funded assistance agreements include:

- *Air Quality and Air Pollution Sources in Several Western National Parks - Sponsor: NPS*; 8/11/16-1/31/18; P16AC01089/P14AC00728; CSU planned and conducted ozone season VOC sampling at several National Parks in the SW US. Canisters were prepared and analyzed at CSU and data provided to the NPS Air Resources Division. All project objectives and reporting requirements were met & findings were published in the peer-reviewed literature.
- *Following Emissions from Non-Traditional Oil and Gas Development Through Their Impact on Tropospheric Ozone – Sponsor: NOAA*; 8/01/2014 – 7/31/2019; NA140OAR4310148; CSU made online measurements of VOCs and other trace gasses north of Denver to attribute the observed VOCs to sources and evaluate their impacts on ozone production in the region. All project objectives/reporting requirements were met & findings were published in the peer-reviewed literature.

The City of Fort Collins role, as Grant Manager, will be directed by Cassie Archuleta, Air Quality Program Manager, who has over 20 years of professional experience in air quality and has managed multiple projects and grants. Jason Komes will serve as the City of Fort Collins Project Coordinator. Larimer County's role will be directed by Lea Schneider, who has over 20 years of professional experience in public and environmental health. CSU's monitoring efforts will be directed by Atmospheric Science Professors Jeffrey Collett and Emily Fischer. Drs. Collett and Fischer have over 4 decades of combined experience in air quality studies sponsored by NSF, NASA, NOAA, NPS, USEPA, DOE, CDPHE, CARB, LADCO, and local governments. CSU's Center for Environmental Justice's role will be directed by Mindy Hill, who has 30 years of combined professional experience in environmental education, health and justice issues. See Attachment 4 for key personnel resumes.

Section 7 – BUDGET NARRATIVE: The total requested funding is $499,139. Excluding indirect charges, total requested funding for Task 2, Air Toxics Monitoring, is $280,767. Total requested funding for Task 3, Outreach, is $62,794. The City of Fort Collins and Larimer County will cover the costs for Task 1, Monitoring Advisory Committee, and also will provide free event space at their facilities, will cover child care costs and food/beverages for project events. The Grant Manager will be responsible for ensuring compliance with all applicable regulatory requirements, including City policies and federal requirements. Grant management will include timely and accurate reporting, and compliance with financial and programmatic aspects of the grant. The Project Manager will be responsible for management and coordination of all project elements. Cooperative agreements resulting from this announcement will be funded for a three-year period and are expected to be fully funded at the time of award. Following the award, and prior to expenditure, funds will be presented to Fort Collins City Council for budget appropriation. Any procurement related to this grant will be subject to the City's procurement policies and procedures, which includes requirements for competitive processes, exceptions under specific circumstances and will also comply with all EPA procurement requirements.

Table 3. Project Budget

Line Item and Itemized Cost					EPA Funding
Personnel					
Title	Salary	Hours/year	Year 1	Year 2*	Year 3*	TOTAL
PI	$169,733	87/70/70	$7,452	$6,158	$6,343	$19,953
CO-PI	$264,000		$0	$0	$0	$0
Research Scientist	$75,400	347/347/347	$12,632	$13,011	$13,401	$39,044
Program Manager	$60,000	50/50/50	$1,447	$1,491	$1,228	$4,166
TBN #1 AP, Project Coordinator	$65,000	520/520/520	$16,331	$16,821	$17,326	$50,478
TBN #2, GRA	$61,489	1170/1170/0	$34,761	$35,803	$0	$70,564
TOTAL PERSONNEL			$72,623	$73,284	$38,298	$184,205
Fringe Benefits (26.7%)						
TOTAL FRINGE BENEFITS			$13,586	$13,587	$10,226	$37,399
Travel			Year 1	Year 2	Year 3	
Weekly canister changing (RT from CSU Lab to Greeley): @72 mi/wk @ $.50/mi			$1,872	$1,872	$1,872	$5,616
M-Lab (Tahoe) @ 2 trips/month x 100 mi/trip x $2.62/mi			$6,288	$6,288	$6,288	$18,864
TOTAL TRAVEL			$8,160	$8,160	$8,160	$24,480
Equipment						
2 SENSIT SPODs @ $7,392/unit), includes connectivity fee for Yr 1						$14,784
TOTAL EQUIPMENT						$14,784
Supplies						
Scientific supplies are required for fittings, pressure gauges, containers etc needed to deploy the SPODs with whole air canisters						$25,177
TOTAL SUPPLIES						$25,177
Contractual						
CSU CEJ- Translation services for the annual community events; events will be held in Spanish and English						$2,800
TOTAL CONTRACTUAL						$2,800
Other						
Honorarium-speaker fees						$7,000
Other costs for community events						$5,250
Art-related (CSU Hatton Gallery) for artist, production, etc.						$10,500
Web and cellular fees (SPOD's yr 2, 3)						$1,400
Computer svc- Networking charges (yrs 2 &3)						$978
Tuition for graduate student						$29,588
TOTAL DIRECT COSTS						$54,716
Indirect Charges**						
TOTAL INDIRECT						$155,578
TOTAL FUNDING						$499,139
TOTAL PROJECT COST						$499,139

* inflated by 3%/year starting July 1, ** See Attachment 2 for more information on Indirect Rate.

Attachment 1 – Quality Assurance Statement

Quality Assurance Statement
Project Title:
Enhancing Monitoring of Air Toxics and Air Quality Education in Underserved Communities in Northern Colorado

Persons responsible for quality assurance (QA) and quality control (QC): CSU's total VOC and air toxics monitoring efforts will be directed by Atmospheric Science Professors Jeffrey L. Collett, Jr. and Emily V. Fischer. Drs. Collett and Fischer have over 4 decades of combined experience in air quality studies sponsored by NSF, NASA, NOAA, NPS, USEPA, DOE, CDPHE, CARB LADCO, and local governments.

Summary: Standard operating procedures (SOPs) have previously been developed by CSU for proposed measurements, including the whole-air canister sampling, VOC analysis by GC, methane and VOC measurements by the AROMA-VOC analyzer, and continuous TVOC measurements using the SPOD PID sensors. Prior to field work, a project plan and field plan will be developed and included in an overall Quality Assurance Project Plan (QAPP). Instrument accuracy will be ensured through regular calibration using certified standard gases. The VOC measurement precision will be established using co-located canister sampling and replicate lab analysis of canisters. Continuous data will be quality controlled at least monthly during field measurements. All final data and associated metadata will be made available through the CSU digital archive. ***Given length limits, here we provide one example summary of the process that we use for SPODs deployments. Our existing QAPP and SOP documents for these measurements are very detailed, requiring >15 pages and can be produced immediately upon request.***

Example Process for Preparing SPODs and Determining Acceptable Data Quality:
SPODs provide general information on TVOC concentration and direction of plumes. Equipped with automated canister trigger controllers, the SPOD system also provides samples for speciated VOC measurements by offline GC-FID/MS. QA/QC procedures for the SPOD are summarized in the table below. These procedures will ensure proper operation of the SPOD system. Elevated events are typically defined as spikes of TVOC over 60 ppbv as seen by the PID sensor. SPOD data are stored in the SENSIT data server https://sensitconnect.net/ and then will be transferred to the CSU Digital Repository.

Table 1: Example of SPOD deployment criteria and corrective actions

Condition	Acceptance Criteria	Method procedure/Corrective Action	Frequency
SPOD pre-deployment test	SPOD must prove normal operation over the span of a minimum of 36 hours	Five bump tests (BTs) must be completed on the test range, and all sensor data checked for reasonability before deployment. / Consult SENSIT for replacement of PID for non responsiveness.	Once before each deployment

Condition	Acceptance Criteria	Method procedure/Corrective Action	Frequency
Verify proper SPOD setup	Completion of SPOD installation, configuration, and conduct BTs	Execute VI.6 of this SOP/If specific sensors are found to be non-operational, consult SENSIT on correction actions	Once at each installation
Periodic SPOD operation checks	Check SPOD sensor inlet and completion of SPOD BTs	Execute VI.6 of SOP/If specific sensors are found to be non-operational, consult SENSIT on correction actions	Once per two months of deployment (or by frequency specified in the QAPP) and at the end of deployment
Daily sampling check	Canister retrieved and port reset within a day (or frequency specified in the QAPP)	Execute VI.4 in SOP/no corrective action is required	Once for each day of data acquired
Weekly triggered event report	Completion of weekly triggered event report	Execute VI.5 in SOP/ no corrective action is required	Once per week
Wind measurement check	Reasonableness compared to independent values	Perform reasonableness check by comparing acquired data and other collocated data source/if found problematic, exclude related wind data	Once per two weeks recommended
Field canister check	Canister vacuum should be above 25 inHg and near 0 initially and after being triggered, respectively	Execute VI.4 in SOP/If initial vacuum is lower than 25 inHg, do not use the canister; if canister vacuum is not zero after being triggered, do not analyze canister. Remove triggering valve for leak checking in laboratory setting.	Once at canister set up or retrieval

Attachment 2 – CSU's Indirect Rate Sheet

COLLEGES AND UNIVERSITIES RATE AGREEMENT

EIN: 846000545

ORGANIZATION:

Colorado State University
Business and Financial Services
202 Johnson Hall
Fort Collins, CO 80523

DATE:06/08/2021

FILING REF.: The preceding agreement was dated 06/04/2020

The rates approved in this agreement are for use on grants, contracts and other agreements with the Federal Government, subject to the conditions in Section III.

SECTION I: INDIRECT COST RATES

RATE TYPES: FIXED FINAL PROV. (PROVISIONAL) PRED. (PREDETERMINED)

	EFFECTIVE PERIOD				
TYPE	**FROM**	**TO**	**RATE(%)**	**LOCATION**	**APPLICABLE TO**
PRED.	07/01/2014	06/30/2015	48.70	On-Campus	Organized Research
PRED.	07/01/2015	06/30/2016	50.00	On-Campus	Organized Research
PRED.	07/01/2016	06/30/2017	51.00	On-Campus	Organized Research
PRED.	07/01/2017	06/30/2019	52.00	On-Campus	Organized Research
PRED.	07/01/2014	06/30/2019	26.00	Off-Campus	Organized Research
PRED.	07/01/2014	06/30/2019	56.00	On-Campus	Instruction
PRED.	07/01/2014	06/30/2019	26.00	Off-Campus	Instruction
PRED.	07/01/2014	06/30/2019	34.00	On-Campus	Other Sponsored Activities
PRED.	07/01/2014	06/30/2019	26.00	Off-Campus	Other Sponsored Activities
PRED.	07/01/2014	06/30/2019	8.00	Off-Campus	(A)
PROV.	07/01/2019	Until Amended		(B)	

*BASE

Modified total direct costs, consisting of all direct salaries and wages, applicable fringe benefits, materials and supplies, services, travel and up to the first $25,000 of each subaward (regardless of the period of performance of the subawards under the award). Modified total direct costs shall exclude equipment, capital expenditures, charges for patient care, rental costs, tuition remission, scholarships and fellowships, participant support costs and the portion of each subaward in excess of $25,000. Other items may only be excluded when necessary to avoid a serious inequity in the distribution of indirect costs, and with the approval of the cognizant agency for indirect costs.

(A) Intergovernmental Personnel Act Agreements.

(B) Use same rates and conditions as those cited for fiscal year ending June 30, 2019.

SECTION I: FRINGE BENEFIT RATES**

TYPE	FROM	TO	RATE(%)	LOCATION		APPLICABLE TO
FIXED	7/1/2021	6/30/2022	26.70	All	(A)	Fac. & Prof. (1)
FIXED	7/1/2021	6/30/2022	48.20	All	(A)	State Classified
FIXED	7/1/2021	6/30/2022	0.20	All	(A)	Student Hourly
FIXED	7/1/2021	6/30/2022	25.90	All	(A)	Temporary (2)
FIXED	7/1/2021	6/30/2022	10.00	All	(A)	All Graduate Students
FIXED	7/1/2021	6/30/2022	13.00	All	(A)	1st YR Post Docs(3)/Other Temp.(4)
FIXED	7/1/2021	6/30/2022	23.50 (5)		(B)	All Employees (5)
PROV.	7/1/2022	6/30/2025		(C)		

** DESCRIPTION OF FRINGE BENEFITS RATE BASE:

(A) Salaries and wages including vacation, holiday, sick leave pay and other paid absences.

(B) The total of salaries and wages plus appropriate fringe benefits excluding vacation, holiday, sick leave pay and other paid absences.

(C) Use same rates and conditions as those cited for fiscal year ending June 30, 2022.

(1) Faculty, administrative professionals and second-year plus post docs and interns

(2) Temporary non-student hourly

(3) First-year post docs and interns

(4) Temporary first-year faculty, administrative professionals, including continuing temporary faculty and administrative professionals at less than 50% time.

(5) Leave benefit rate for Center for Environmental Management of Military Lands (CEMML) & Colorado National Heritage Program (CNHP)

SECTION II: SPECIAL REMARKS

TREATMENT OF FRINGE BENEFITS:

The fringe benefits are charged using the rate(s) listed in the Fringe Benefits Section of this Agreement. The fringe benefits included in the rate (s) are:

WORKERS COMPENSATION, MEDICAL/LIFE INSURANCE, DISABILITY INSURANCE, UNEMPLOYMENT INSURANCE, MEDICARE, RETIREMENT PERA/DCP, RETIREMENT TERMINATION PAY, EXCESS LEAVE, RETIREE HEALTH INSURANCE, AND EMPLOYEES' TUITION (DOES NOT INCLUDE GRADUATE STUDENTS).

TREATMENT OF PAID ABSENCES

Except for CEMML & CHNP employees, vacation, holiday, sick leave pay and other paid absences are included in salaries and wages and are charged to Federal projects as part of the normal charge for salaries and wages. Separate charges for the cost of these absences are not made.

For CEMML & CHNP employees, the cost of vacation, holiday, sick leave pay, and other paid absences are included in a leave benefit rate which is applied to the total of salaries and wages plus appropriate fringe benefits for budgeting and charging purposes for Federal projects, and are not included in direct charges for salaries and wages. Charges for salaries and wages must exclude those paid to CEMML & CNHP employees for periods when they are on vacation, holiday, or sick leave, or are otherwise absent from work.

DEFINITION OF OFF-CAMPUS
For projects which include activities conducted at both on- and off-campus sites, the following criteria will determine costs to be allocated as off-campus: Must extend over a period of more than 120 consecutive days (or the duration of the project, if less than 120 days) at the off-campus site.

DEFINITION OF EQUIPMENT
Equipment means tangible personal property (including information technology systems) having a useful life of more than one year and a per-unit acquisition cost which equals or exceeds $5,000.

NEXT PROPOSAL DUE DATES
A fringe benefit rates proposal based on actual costs for fiscal year ended 06/30/21, will be due by 12/31/21.

This rate agreement updates fringe benefits rates only.

SECTION III: GENERAL

A. LIMITATIONS:

The rates in this Agreement are subject to any statutory or administrative limitations and apply to a given grant, contract or other agreement only to the extent that funds are available. Acceptance of the rates is subject to the following conditions: (1) Only costs incurred by the organization were included in its facilities and administrative cost pools as finally accepted: such costs are legal obligations of the organization and are allowable under the governing cost principles; (2) The same costs that have been treated as facilities and administrative costs are not claimed as direct costs; (3) Similar types of costs have been accorded consistent accounting treatment; and (4) The information provided by the organization which was used to establish the rates is not later found to be materially incomplete or inaccurate by the Federal Government. In such situations the rate(s) would be subject to renegotiation at the discretion of the Federal Government.

B. ACCOUNTING CHANGES:

This Agreement is based on the accounting system purported by the organization to be in effect during the Agreement period. Changes to the method of accounting for costs which affect the amount of reimbursement resulting from the use of this Agreement require prior approval of the authorized representative of the cognizant agency. Such changes include, but are not limited to, changes in the charging of a particular type of cost from facilities and administrative to direct. Failure to obtain approval may result in cost disallowances.

C. FIXED RATES:

If a fixed rate is in this Agreement, it is based on an estimate of the costs for the period covered by the rate. When the actual costs for this period are determined, an adjustment will be made to a rate of a future year(s) to compensate for the difference between the costs used to establish the fixed rate and actual costs.

D. USE BY OTHER FEDERAL AGENCIES:

The rates in this Agreement were approved in accordance with the authority in Title 2 of the Code of Federal Regulations, Part 200 (2 CFR 200), and should be applied to grants, contracts and other agreements covered by 2 CFR 200, subject to any limitations in A above. The organization may provide copies of the Agreement to other Federal Agencies to give them early notification of the Agreement.

E. OTHER:

If any Federal contract, grant or other agreement is reimbursing facilities and administrative costs by a means other than the approved rate(s) in this Agreement, the organization should (1) credit such costs to the affected programs, and (2) apply the approved rate(s) to the appropriate base to identify the proper amount of facilities and administrative costs allocable to these programs.

BY THE INSTITUTION:	ON BEHALF OF THE FEDERAL GOVERNMENT:
Colorado State University Business and Financial Services	DEPARTMENT OF HEALTH AND HUMAN SERVICES
(INSTITUTION)	(AGENCY)
(SIGNATURE)	Arif M. Karim -S Digitally signed by Arif M. Karim -S Date: 2021.06.13 19:41:56 -05'00' (SIGNATURE)
David Ryan (NAME)	Arif Karim (NAME)
Controller (TITLE)	Director, Cost Allocation Services (TITLE)
6/18/2021 (DATE)	6/8/2021 (DATE) 2341

HHS REPRESENTATIVE: Jeffrey Warren

Telephone: (415) 437-7820

Attachment 3 – Letters of Support

City of Fort Collins

Environmental Services
222 Laporte Ave
PO Box 580
Fort Collins, CO 80522
970-221-6600
fcgov.com

DATE: March 8, 2022
TO: Mayor and City Councilmembers
FROM: Air Quality Advisory Board; Chair, Karen Artell
RE: **EPA Community Monitoring Grant Application – AQAB Letter of Support**

Dear Mayor and Council Members,

The Fort Collins Air Quality Advisory Board (AQAB) is pleased to provide this letter of collaboration in support of your proposal to the Environmental Protection Agency (EPA) entitled "Enhancing Monitoring of Air Toxics and Air Quality Education in Underserved Communities in Northern Colorado." We understand EPA's objective in issuing these awards is to enable disproportionately impacted communities to monitor air quality and to promote monitoring partnerships. We appreciate your efforts in engaging regional partners, the plan to monitor air emissions in disproportionately affected communities and establishing easily understood educational materials for the public to motivate actions that improve air quality.

The AQAB, established in 1995, advises the Fort Collins City Council regarding policies, plans, and programs to improve and maintain the City's air quality. The AQAB meets monthly. The AQAB is particularly interested in the environmental justice focus of the City's proposal. We appreciate the opportunity to increase regional efforts related to air emissions monitoring, outreach, and education for disproportionately impacted communities. AQAB members bring varied interests and backgrounds to the Board, including communication science and research, meteorology and air quality forecasting, atmospheric science, climate impacts, air quality monitoring, transportation planning and public health.

Fort Collins and Larimer County are situated in northern Colorado. Colorado is a major oil and gas producing state. Much of the oil and gas production is along the front range east of the Rocky Mountains and close to cities, communities and homes. Fort Collins is up against the Rocky Mountain foothills and part of the Denver Metro North Front Range ozone non-attainment area. The area is in serious non-attainment for ozone and soon to be downgraded to severe non-attainment. VOCs and NOx from oil and gas wells to the east of the County are carried by local winds to the west and up against the foothills. The Fort Collins West ozone monitor has some of the highest ozone readings in Colorado. Currently, there is no monitoring of VOCS, including air toxics and ozone precursors, from local and regional sources that contribute to health impacts.

In addition to regional oil and gas impacts, disproportionately affected community members are more likely to live near industrial areas and heavily trafficked streets. This adds to the community members' negative health outcomes related to these air pollutants.

The Fort Collins City Council has established priorities that include improving the City's air quality and advancing regionalism. The AQAB supports these priorities. Air emissions know no boundaries which makes addressing the issue of poor air quality particularly suited to a regional effort. The EPA Enhanced Monitoring Grant contributes to these priorities with partners that include the Colorado Department of Public Health and Environment (CDPHE), CSU, our County Health Department and possibly Weld County to the east and other County municipalities and the establishment of a regional air quality advisory group.

The AQAB is committed to the success of the project and offers its expertise in the following areas for the duration of the grant performance period:

- Participate on the Air Quality Monitoring Advisory Group that will be created to assist in the design, planning and performance of the project.
- Advise Fort Collins City Council on development of effective policy based on grant outcomes.
- Advise on development and distribution of education and outreach materials, providing critical feedback on communication strategies based on expertise, community knowledge and insight.

If awarded by the EPA, we look forward to working with you as the project moves forward.

COLORADO
Department of Public
Health & Environment

Dedicated to protecting and improving the health and environment of the people of Colorado

21 March 2022

Cassie Archuleta
Air Quality Program Manager
City of Fort Collins

Dear Ms. Archuleta,

The Colorado Department of Health and Environment (CDPHE), Air Pollution Control Division (APCD), is excited to collaborate with the City of Fort Collins on its application for the US Environmental Protection Agency's "Enhanced Air Quality Monitoring for Communities" grant. The partnership between CDPHE and local agencies like Fort Collins is a cornerstone of successfully protecting the health of all Coloradans. CDPHE recently adopted air quality data collection and improvements as one of its Wildly Important Goals, major objectives that will benefit all Coloradans and especially the most vulnerable members of our state.

The existing APCD air monitoring network is designed to protect public health on a more regional basis. The region is currently classified as a serious non-attainment area for ozone, and is in the process of being bumped up to a severe classification. Population is rapidly growing in the area as well as oil and gas development. This makes it a prime area for additional air monitoring in order to provide a more local, community-oriented view and to protect disproportionately impacted and underrepresented communities.

In partnership with Larimer County and Colorado State University, the City of Fort Collins proposal will focus on both EPA criteria pollutants as well as air toxics which can have significant health-related impacts. In addition, Fort Collins will perform outreach and investigations increase awareness and to mitigate the impacts of air pollution on communities. The APCD will collaborate with Fort Collins and its partners to help achieve the goals.

The APCD will provide Fort Collins and partners with technical assistance on study design, sensor selection and placement, and community engagement. APCD's experience will improve the project's quality assurance, data interpretation, and development of appropriate public messaging, while this project will improve the state's understanding of air pollutants and at-risk populations in Colorado.

We look forward to joining with Fort Collins and other partners in the area to help make the project successful. CDPHE's mission is to protect public health and your proposal directly fits into our goal. We hope that your proposal is funded. Please feel free to contact me with any questions. I can be reached at (720) 597-2904 or michael.ogletree@state.co.us.

Sincerely,

Michael Ogletree
Director
Air Pollution Control Division

The Center for
Environmental Justice

February 28, 2022

Dear City of Fort Collins,

We are excited to support the grant proposal you are submitting to the EPA entitled "Enhancing Monitoring of Air Toxics and Air Quality Education in Underserved Communities in Northern Colorado," and we recognize and appreciate your efforts to specifically focus on justice and the community by monitoring air pollutants of concern in underserved communities where there are disproportionate health impacts related to air pollution or the COVID-19 pandemic. Our center works to support resilience through community engagement. We recognize that, despite being overburdened with health impacts of air pollution, the high cost of housing, and economic inequity, there is strength and wisdom in the lived experience of our community. We are writing this letter of support because we believe this grant would support the types of engagement, we need to begin unwinding systemic impacts of racism and inequity, and improving air quality and thus, our health and wellbeing.

From our preliminary meetings with the City of Fort Collins, Larimer County, CSU Atmospheric Sciences and other organizations, we understand the role that the Center for Environmental Justice can play in this project to be as follows:

The Center for Environmental Justice (CEJ) will organize community engagement events where decisions about air quality monitoring equipment placement are being made, where storytelling and civic engagement skill-building is happening, and where public art is being created. CEJ events will be welcoming, accessible, and inclusive (including translation services, childcare, food, and honorariums for cultural representatives and other participants).

We appreciate this opportunity to partner with you on this proposal. For future efforts, we believe the results will increase public awareness and ultimately better enable community members to take actions to protect themselves from air quality concerns and engage in the policy process to protect those most vulnerable.

Sincerely,

Mary Hill

COLORADO STATE UNIVERSITY-POLITICAL SCIENCE
1782 CAMPUS DELIVERY, FORT COLLINS, CO 80523

WWW.ENVIRONMENTALJUSTICE@COLOSTATE.EDU

P.O. Box 400 Fort Collins, CO 80522 www.fccan.org info@fccan.org 970.419.8944

Mar 9, 2022

To the City of Fort Collins;

The Fort Collins Community Action Network (FCCAN) is pleased to provide this letter of collaboration in support of your proposal to the Environmental Protection Agency entitled "Enhancing Monitoring of Air Toxics and Air Quality Education in Underserved Communities in Northern Colorado." It is understood that Colorado State University's Atmospheric Science Department and the Larimer County Department of Health and Environment will be partnering agencies supporting Fort Collins on the proposal.

Our Northern Colorado landscape creates a complex air quality environment, characterized by shifting airflow conditions that intensify air pollutants along the foothills of the Rocky Mountains. Pollution of air toxics is a concern for our communities especially with our rapidly growing population and dense oil and gas development in Northern Colorado. Many of our under-resourced communities are experiencing environmental and health outcome disparities potentially stemming from exposure to air toxic pollution. The disparities amongst our communities were made even more evident during the COVID-19 pandemic.

FCCAN has actively engaged with our local governments over the years advocating for environmental justice policies that will benefit the entire community, while centering the needs of our members who are disproportionately impacted by the oil and gas industry, air pollution and climate catastrophe.

From our preliminary interactions and meetings with the grant partners regarding initial project design, it is understood that the goals of the project are to provide understandable air toxics data to underserved communities to increase awareness and understanding of health-related air quality impacts, as well as outline actions that individuals can take to protect themselves and to mitigate air pollution. To demonstrate our support and long-term involvement to achieve the goals of the grant, our organization is committing to the following:

- Foster connections to disproportionately impacted communities including those with known health outcome disparities interested in participating in monitoring.

P.O. Box 400 Fort Collins, CO 80522 www.fccan.org info@fccan.org 970.419.8944

- Provide a venue or virtual platform to host engagement events like community meetings, discussion groups, and open houses, with the potential to plan and facilitate these activities.
- Disseminate project information to increase public awareness and scheduled events via our website, newsletter, social media, meetings, community activities, etc.
- Develop and distribute education and outreach materials providing critical feedback on communication strategies based on community knowledge and insight.

Sincerely,

Shirley Man-Kin Leung
Coordinator, FCCAN

LEAGUE OF WOMEN VOTERS®
OF LARIMER COUNTY
Administrative Team

March 6, 2022

Dear City of Fort Collins,

We are writing this letter of support for the grant proposal you are submitting to the EPA entitled "Enhancing Monitoring of Air Toxics and Air Quality Education in Underserved Communities in Northern Colorado".

The League of Women Voters position on Environmental Planning and Management supports policies that enhance public participation in the permitting and monitoring of oil and gas operations in the state. We support strong environmental regulations to protect air quality and its impact on human health. Air quality monitoring is an important area of concern for the League of Women Voters of Larimer County.

We believe we are uniquely poised to contribute to the education and outreach objectives of this proposal. Our organization encourages the informed and active participation of the public in government. We work to increase understanding of major policy issues that are required for effective decisions and those decisions must be driven by fact-based information. Having data developed from the EPA proposal will significantly benefit future initiatives.

One example of our endeavors is the development of a webinar entitled, "Fracking and Its Effect on Our Loveland Community, Facts, Rules & Regulations, Economic Factors, Health Impacts and Environmental Impacts". We believe that activities of this nature will help to inform and positively influence public policy.

We attempt to view all that we do through a Diversity, Equity and Inclusion lens, which in its simplest terms is about fairness, about getting everyone what they need in order to improve the quality of their lives. This makes the proposal's objective of focusing on monitoring air pollutants in underserved communities especially pertinent.

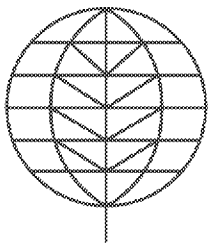
From our preliminary meetings with the City of Fort Collins, Larimer County, CSU Atmospheric Science and the Center for Environmental Justice, we believe that the League of Women Voters of Larimer County can play an important role in building trusting relationships and enhanced understanding of sustainable solutions to air quality problems. We would welcome the opportunity to be long term partners in this initiative.

Sincerely,

DocuSigned by:
Jane Hamburger
4E51CD0D717D4AF...

Jane Hamburger, Spokesperson

League of Women Voters of Larimer County



Dear City of Fort Collins,

Earthworks and League of Oil and Gas Impacted Coloradans are writing this letter to support the proposal submitted to the Environmental Protection Agency entitled "Enhancing Monitoring of Air Toxics and Air Quality Education in Underserved Communities in Northern Colorado" as a necessary step towards beginning to address the burden that poor air quality has on the health of residents of Northern Colorado, and in particular, on the health of those residents who also suffer the negative impacts of racial and economic injustices on their livelihoods.

We will commit our organizations to serving in an advisory capacity, assisting with data collection, and in helping to engage the community around this project by disseminating information, hosting events, and identifying monitoring locations. We recognize that Fort Collins is partnering with Colorado State University's Atmospheric Science Department and the Larimer County Department of Health and Environment on this proposal, and we invite all of these entities to see the program outlined in this application as the opening of a dialogue and opportunity for meaningful collaboration with communities impacted by air pollution.

For years, our organizations have engaged with residents impacted by air pollutants from oil and gas development and have brought their voices and stories to the forefront in conversations centered on improving oil and gas regulations with the City of Fort Collins, Larimer County, and the State of Colorado. Working in collaboration with one another, and with residents, we have participated in stakeholder groups and public meetings, reviewed and commented on draft oil and gas regulations, turned out public comment at hearings before decision making bodies, and worked tirelessly to keep communities informed about opportunities for engagement. All of this effort has resulted in measurable progress with new oil and gas regulations passed at the state and local levels in the last few years that are more protective of public health and the environment. However, we have also seen firsthand how implementation of these regulations has been challenging, and have continued to bring attention to the fact that community members in Northern Colorado are still struggling with day-to-day pollution from oil and gas.

Too often community members concerned about air pollution do not have their concerns responded to in a timely and effective manner, and their trust in the elected bodies and agencies that are supposed to protect them from harm suffers as a consequence. Community members

want more options for air quality monitoring, but they also want to see a substantive improvement in air quality and consequences for polluting entities that endanger public health.

For this reason, while we are supportive of the programs outlined in this proposal to increase access to VOC monitors and to educate the public about air pollution, we also must see this proposal, if awarded, evolve into a more comprehensive and impactful collaboration between the project planners and impacted community members. What an air quality monitoring program resulting from such a collaboration ultimately looks like should be the result of open, engaged dialogue. At the very least we would hope to see:

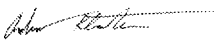
- A transparent, easy-to-understand process for distributing VOC monitors and canisters (and all future monitoring technologies) to communities with clear guidelines for prioritization of resources and parameters for length of deployment. This should include:
    - Any deployment of monitoring technology in a community should be viewed as a long-term commitment to that community regardless of whether high levels of VOCs (or other air pollutants) are discovered.
    - The administration of this monitoring program must include dedicated points of contact for community members who must be responsive to concerns, questions, and requests .
    - This process must include messaging about the limitations of these technologies and the data they gather so that community members can set their expectations accordingly. If community members are experiencing health impacts from pollution they should understand what VOC monitors and canisters (and all future monitoring technologies) may be able to detect (or not detect), what the data may mean, and how this in turn can inform their experiences.

- A collaborative approach with impacted community members to identify additional monitoring technologies and approaches that could be added to the program in the future.
- Efforts to supplement monitoring technology with optical gas imaging (OGI) cameras that would permit the local governments to respond more effectively to community concerns about pollution from specific oil and gas facilities.
- A commitment to ensuring that data gathered from air quality monitoring (or other technologies like OGI) is actionable. Community members need to see meaningful follow-up to evidence of air pollution. It is not enough to simply educate communities about the impacts of air pollution and then confirm for them via enhanced monitoring that this air pollution is occuring. This would include:
    - Concrete plans for how data collected by monitors and canisters will be employed in investigating possible air toxin exceedances and used in potential enforcement proceedings;

- Opportunities for community members who are trained to collect and interpret air quality data to engage in regulatory conversations and enforcement proceedings; and,
- Assessment of standards for admissible evidence - community gathered data should be given weight and importance in making decisions about air quality rules, air toxin health guidelines, and compliance issues related to these rules and guidelines.

In supporting this proposal, we look forward to continuing our engagement with the City of Fort Collins, Colorado State University's Atmospheric Science Department, and the Larimer County Department of Health and Environment to ensure this effort is impactful.

Sincerely,



Andrew Klooster, Colorado Field Advocate, Earthworks

Andrew Forkes-Gudmundson, Deputy Director, League of Oil and Gas Impacted Coloradans

NORTHERN COLORADO
MEDICAL SOCIETY

Dear City of Fort Collins,

As the Northern Colorado Medical Society, we represent over 750 physicians who practice in Larimer and Weld Counties. A part of helping patients stay healthy is to limit exposure to environmental toxins. In our counties, there is a major concern regarding air quality, not only ozone (non-attainment area since 1978 – currently in the serious EPA category), but for other health harming toxins (volatile organic compounds (VOCs) and particulate matter (PPM)).

We wholeheartedly support the grant proposal you are submitting to the EPA entitled "Enhancing Monitoring of Air Toxics and Air Quality Education in Underserved Communities in Northern Colorado," and we recognize and appreciate your efforts to specifically focus on monitoring air pollutants of concern in underserved communities where there are disproportionate health impacts related to air pollution. We are writing this letter of support because we believe this grant would support the types of engagement, we need to begin unwinding systemic impacts of racism and inequity, improving air quality and thus, our health and wellbeing.

Most importantly, we are interested in improving the lives of our patients. Our hope is that the additional data gathered with the EPA grant will create changes that will improve air quality and decrease the toxins circulating in the air we breathe.

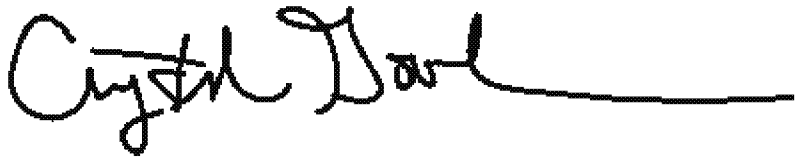
We appreciate this opportunity to support you on this proposal. For future efforts, we believe the results will increase public awareness and ultimately better enable community members to take actions to protect themselves from air quality concerns and engage in the policy process to protect those most vulnerable.

Specifically, we, the doctors of Larimer and Weld County could help partner with programs that educate the disenfranchised populations regarding their exposures and help create a healthier environment for all.

Contact person for health education from exposure to air pollution: Dr. Cory D. Carroll, M.D.

Cory D. Carroll, M.D.
3213 Nelson Lane
Fort Collins, CO 80525
www.FoothillsFamilyCareLLC.com
office 970-221-5858
cell 970-214-0787

Sincerely,



Crystal Goodman, Executive Director
Northern Colorado Medical Society
314-503-5815
crystal@nocomedsoc.org
www.nocomedsoc.org

PSR Colorado
Physicians for Social Responsibility

March 16, 2022

Dear City of Fort Collins,

PSR Colorado is an organization that includes not only physicians but many other individuals who are concerned about not only the people on the planet but the planet itself. PSR national's famous quote is "We Must Prevent What We Cannot Cure – mobilizing health professionals on issues that represent the gravest dangers to human health".

As a non-profit organization in Colorado, we want to lend our support to the grant proposal you are submitting to the EPA entitled "Enhancing Monitoring of Air Toxics and Air Quality Education in Underserved Communities in Northern Colorado". We appreciate your efforts to specifically focus on monitoring air pollutants of concern in underserved communities where there are disproportionate health impacts related to air pollution alongside the COVID-19 pandemic.

We understand that poor air quality in Larimer County originated from many different sources. Our hope is that the additional data gathered with the EPA grant will help to identify specific sources that will allow the City, County, and State to better enforce or to change regulations to stop the pollution.

Our potential role would be to continue educating the public and decision-makers on sources of air pollution. We currently have resources to educate individuals on the indoor pollution coming from our fossil fuel burning appliances in our home and on the health impacts of toxic emissions, such as benzene, from hydraulic fracturing.

Sincerely,

Name: Sharon Montes, MD, Board Chair

Organization: PSR Colorado

Phone Number: 720 989-4185 (Barbara Donachy, Board Secretary)

Email: info@psrcolorado.org

Website: https://www.psrcolorado.org/

RAQC
REGIONAL AIR QUALITY COUNCIL

March 14, 2022

To the City of Fort Collins:

The Regional Air Quality Council (RAQC) is pleased to provide this letter of collaboration in support of the City of Fort Collins' proposal to the United States' Environmental Protection Agency, *"Enhancing Monitoring of Air Toxics and Air Quality Education in Underserved Communities in Northern Colorado".*

The Northern Colorado geography creates challenges for air quality, with shifting airflow conditions that intensify air pollution along the foothills of the Rocky Mountains. Air pollution is a key concern for our communities, with rapidly growing population and dense oil and gas development. Many of our under-resourced communities experience disparities in health outcomes that are highly correlated with exposure to air toxic pollution.

As the lead air quality planning agency for the Denver Metro/North Front Range (DM/NFR) Nonattainment Area, the RAQC has a keen interest in continuously improving our understanding of air quality in the nonattainment area. Though air quality in our region has improved since the RAQC's inception in 1989, the region is currently classified as a nonattainment area under both the 2008 8-hour ozone National Ambient Air Quality Standard (NAAQS) and 2015 8-hour ozone NAAQS. The RAQC is currently engaged in planning efforts to bring our region into compliance with both federal ozone standards and believes the information from the City of Fort Collins' proposed project will be an invaluable part of this process offering important insight into the exposure to air toxics experienced by underserved communities. Air toxics are both a harmful pollutant in their right, as well as a precursor to ozone formation.

We strongly support the goals of the proposed project: providing understandable air toxics data to underserved communities, to increase awareness and actionable comprehension of health impacts from poor air quality. We will collaborate with the City of Fort Collins to achieve these goals, and will support the City's efforts to identify and communicate about actions that individuals can take to protect themselves from air toxics and to mitigate air pollution.

To demonstrate our support and long-term involvement to achieve the goals of the grant, our organization is committing to the following:

- Participate on the Air Quality Monitoring Advisory Group to assist in the design, planning and performance of the project.
- Provide a venue or virtual platform to host engagement events like community meetings, discussion groups, and open houses, and assist with planning and facilitating these activities.
- Disseminate project information to increase public awareness and scheduled events via our website, newsletter, social media, meetings, community activities, etc.
- Develop and distribute education and outreach materials providing critical feedback on communication strategies based on community knowledge and insight.

We fully support your application and appreciate your initiative and vision for this proposed project.

Jessica Ferko
Director, Air Quality Planning

1445 Market Street, Suite 260 • Denver, CO 80202
P: (303) 629-5450 F: (303) 629-5822
RAQC.org | CleanAirFleets.org | SimpleStepsBetterAir.org

SIERRA CLUB COLORADO

SIERRA CLUB POUDRE CANYON GROUP

Serving Northern Colorado's Larimer & Weld Counties

March 16, 2022

To: City of Fort Collins

cc:
Cassie Archuleta
City of Fort Collins Air Quality Program

Lea Schneider
Larimer County Department of Health and Environment

Emily Fischer
Colorado State University Atmospheric Science Department

Mindy Hill
Colorado State University Center for Environmental justice

Re: Proposal for EPA grant entitled "Enhancing Monitoring of Air Toxics and Air Quality Education in Underserved Communities in Northern Colorado"

The Sierra Club Poudre Canyon Group (PCG) supports the grant proposal submitted to the Environmental Protection Agency (EPA) entitled "Enhancing Monitoring of Air Toxics and Air Quality Education in Underserved Communities in Northern Colorado." The PCG will also cooperate in participatory planning, implementation, and evaluation of air quality monitoring and other activities funded by this EPA grant.

PCG supports this proposal because it will expand air quality monitoring (AQM) in priority disproportionately impacted and underserved communities; expand public participation in identifying and addressing air quality issues and priorities, especially in disproportionately impacted and underserved communities; and foster and strengthen cooperation among stakeholders who can effectively advocate for air quality enforcement actions needed to improve and protect air quality. By targeting air quality monitoring and expanding public participation in disproportionately impacted and underserved communities, this proposal provides strategic action to improve air quality, which will provide health benefits for its residents, especially those who suffer negative impacts from racial and economic injustices, and who often disproportionately suffer with the health burdens associated with poor air quality.

PCG will collaborate in efforts to engage communities to monitor air quality, address air quality issues, and improve air quality, by actively engaging in:

- participatory planning, implementation, and evaluation of air quality monitoring and other activities, with priority to identifying, engaging and helping disproportionately impacted residents and underserved communities;

- a Monitoring Advisory Group and other participatory mechanisms that engage local communities in air quality monitoring and reporting, broaden understanding of air quality issues, and advocate for improving air quality including timely and effective enforcement actions;
- a participatory process for developing and refining guidelines for deployment of AQM equipment and other resources; and for testing innovative approaches to leverage and utilize existing air quality monitoring expertise and resources;
- disseminating information, hosting events, networking with key stakeholders, and other activities aimed at engaging communities impacted by air pollution to address air quality issues;
- fostering relationships with impacted communities regarding cooperation in AQM, including those with known health problems caused by or associated with air pollution;
- development of public, user-friendly reporting of air quality data, to enable communities to monitor their own air quality, and a system for timely dissemination of alerts to impacted communities when emissions thresholds are exceeded;
- development and sharing of informational materials for increasing community understanding of AQM, air quality issues, and community response options;
- participatory policy dialogue regarding AQM data standards and evidence standards, related to practical community participation in improving air quality;
- participatory assessment of AQM activities and evaluation of results.

For many decades, the Sierra Club has raised attention to air pollution and air quality issues, and advocated for clean air. The local Sierra Club Poudre Canyon Group has actively strived to broaden public understanding of air pollution in northern Colorado, especially related to the outsized role of oil and gas development and fossil fuels in localized and regional air pollution which has resulted in negative health and environmental impacts, as well as incalculable damage to Earth's climate with increasing local and regional costs. Drawing on the knowledge and commitment to environmental justice of over 1500 members in Larimer and Weld Counties, PCG actively cooperates with other local organizations and community members, and engages with local governments in Larimer County and Fort Collins, to address air quality issues and advocate for necessary actions to reduce air pollution and improve air quality. PCG has actively participated in numerous collaborative efforts and public meetings, testified in hearings before City councils and the Larimer County Board of County Commissioners, and engaged in public policy processes such as formulation of regulations. PCG actively connects community members to policy makers and agencies responsible for air quality, to enable people's voices and concerns to be heard in the ongoing struggle to reduce air pollution and improve air quality.

Coloradoans are ardent protectors of our state's environment, its natural resources, its beautiful landscapes, waters, and blue sky – and Coloradoans *WANT CLEAN AIR*. Communities suffering from harmful air pollution want real and significant improvement in air quality. These

communities need enforcement grade quality AQM that can produce evidence sufficient for regulatory or other action that reduces air pollution and improves air quality.

Environmental justice and improving air quality are high priorities to PCG, which can be addressed by implementing comprehensive local and regional air quality monitoring and expanding public engagement in disproportionately impacted and underserved communities which suffer poor air quality, and supporting effective advocacy for action to reduce air pollution. PCG also sees AQM activities and results from this EPA grant as contributing to a broader comprehensive framework for air quality monitoring and air quality improvement that includes near-source monitoring and a network of continuous near real-time monitoring. To that end, PCG is committed to participating in a comprehensive multi-stakeholder program for improving air quality in communities and regionally in northern Colorado.

PCG looks forward to collaborating with the City of Fort Collins, Larimer County, Colorado State University, scientists, risk assessors, engineers, policy makers, and other experts, and our impacted local communities in air quality monitoring and other activities enabled by this EPA grant, and cooperating in other ongoing and future efforts to reduce air pollution and improve air quality.

Sincerely,

Megan Thorburn, Chair, and Doug Henderson

Sierra Club Poudre Canyon Group

Attachment 4 – Resumes of Key Personnel

CASSIE ARCHULETA

222 Laporte Ave, Fort Collins, CO 80522 | 970-416-2648 | carchuleta@fcgov.com

QUALIFICATIONS SUMMARY

- Twenty years of professional experience working in air quality
- Six years experience as Air Quality Program Manager for the City of Fort Collins

PROFESSIONAL EXPERIENCE

City of Fort Collins, Air Quality Program Manager — 2015 – Present

- Program manager and team lead
- Develop and implement local air quality policies, programs and regulations
- Develop & administer public information and outreach, incentive and engagement programs to promote awareness and action
- Convene and collaborate with stakeholders including businesses, industry and other local and regional partners to limit pollution sources
- Track and report air pollution data
- Participate in regulatory rulemaking at county, state and federal levels

Air Resource Specialists, Project Scientist II — 2002 – 2015

- Project management, including drafting successful project proposals, and planning and execution of projects from concept to final product
- Data management related to air quality metrics, including data collection, database development and data quality assurance
- Advanced data analysis including comparisons to environmental benchmarks, trend analysis, and spatial analysis and the development of custom graphs, charts, tables and maps
- Communication of results, including preparation of technical reports and presentations related to air quality data including Regional Haze Rule metrics, Hazardous Air Pollutants (HAPs) and National Ambient Air Quality Standards (NAAQS)

Colorado State University, Graduate Research Assistant — 2000 – 2002

- Prepared and presented a thesis and published a peer-reviewed paper on the effects of mineral dust on the formation of cirrus clouds
- Performed laboratory tests that included sample preparation, sample treatment, and troubleshooting of custom ice formation instrumentation

EDUCATION

Master of Science (M.S.), Atmospheric Science — 2003
Colorado State University, Fort Collins, Colorado

Bachelor of Arts, Mathematics — 1998
Adams State University, Alamosa, Colorado

COMMUNITY INVOLVEMENT

City of Fort Collins – Volunteer Neighborhood Mediator	2020-present
Larimer County Public Health Department – Built Environment Leadership Team	2020-presnet
Larimer County Environmental and Science Advisory Board	2012-2015
Fort Collins Chamber of Commerce - Leadership Fort Collins	2010-2011
City of Fort Collins – Healthy Sustainable Homes Volunteer	2012-2015

Biographical Sketch
Jeffrey L. Collett, Jr.

(A) PROFESSIONAL PREPARATION

MIT	CHEMICAL ENGINEERING	SB, 1984
CALTECH	*ENV. ENGINEERING SCIENCE*	MS, 1985
CALTECH	*ENV. ENGINEERING SCIENCE*	PHD, 1989
ETH ZURICH (POSTDOCTORAL FELLOW)	*ATMOSPHERIC PHYSICS*	1989-1991

(B) APPOINTMENTS

2011 – present	Department Head, Colorado State University, Atmospheric Science Department, Fort Collins, CO
1994 – present	Asst. Prof./Assoc. Prof./Professor, Colorado State University, Atmospheric Science Department, Fort Collins, CO
1991-1994	Assistant Professor, Inst. For Env. Studies & Dept. of Civil and Env. Eng., Univ. of Illinois. Urbana, IL

(C) PRODUCTS

(i) Most closely related (5)

Bold indicates Collett Group Members

1. **Hecobian, A., Clements, A.L., Shonkwiler, K.B., Zhou, Y., MacDonald, L.P., Hilliard N., Wells, B.L.**, Bibeau, B., Ham, J.M., Pierce, J.R., and **Collett, Jr., J.L.** (2019) Air toxics and other volatile organic compound emissions from unconventional oil and gas development, *Env. Sci. Techol. Lett.* **6**, 720-726, doi: 10.1021/acs.estlett.9b00591.
2. Permar, W. Wang, Q., Selimovic, V., Wielgasz, C., Yokelson, R.J., Hornbrook, R.S., Hills, A.J., Apel, E.C., **Ku, I.-T., Zhou, Y.**, Sive, B.C. **Sullivan, A.P., Collett, Jr., J.L.**, Campos, T.L., Palm, B.B., Peng, Q., Thornton, J.A., Garofalo, L.A., Farmer, D.K., Kreidenweis, S.M., Levin, E.J.T., DeMott, P.J., Flocke, F., Fischer, E.V., and Hu, L. (2021) Emissions of trace organic gases from western U.S. wild-fires based on WE-CAN aircraft measurements, *J. Geophys. Res.* https://doi.org/10.1029/2020JD033838.
3. **Benedict, K.B., Zhou, Y.**, Sive, B.C., Prenni, A.J., Gebhart, K.A., Fischer, E.V., **Evanoski-Cole, A., Sullivan, A.P.,** Callahan, S., Schichtel, B.A., Mao, H., Zhou, Z., and **Collett, Jr., J.L.** (2019) Volatile organic compounds and ozone in Rocky Mountain National Park during FRAPPE', *Atmos. Chem. Phys.* **19**, 499-521, doi: 10.5194/acp-19-499-2019.
4. **Benedict, K.B.,** Prenni, A.J., **El-Sayed, M.M.H., Hecobian, A., Zhou, Y.,** Gebhart, K.A., Sive, B.C., Schichtel, B.A., and **Collett, Jr., J.L. (2020)** Volatile organic compounds and ozone at four national parks in the southwestern United States, *Atmos. Env.* **239,** https://doi.org/10.1016/j.atmosenv.2020.117783.
5. **Evanoski-Cole, A.R.,** Gebhart, K.A., Sive, B.C., **Zhou, Y.,** Capps, S.L., Day, D.E., Prenni, A.J., Schurman, M.I., Sullivan, A.P., Li, Y., Hand, J.L., Schichtel, B.A., and **Collett, Jr., J.L.** (2017) Composition and sources of winter haze in the Bakken oil and gas extraction region, *Atmos. Environ.* **156**, 77-87, doi:10.1016/j.atmosenv.2017.02.019.

(ii) Other products (5)

1. **Li, Y., Schwandner, F. M.**, Sewell, H. J., Zivkovich, A., Tigges, M., **Raja, S.**, Holcomb, S., Molenar, J. V., Sherman, L., Archuleta, C., **Lee, T., and Collett, Jr., J. L.** (2014) Observations of ammonia, nitric acid, and fine particles in a rural gas production region, *Atmos. Env.* **83**, 80-89.
2. Prenni, A. J., Day, D. E., **Evanoski-Cole, A. R.**, Sive, B. C., **Hecobian, A.**, **Zhou, Y.**, Gebhart, K. A., Hand, J.L., **Sullivan, A. P., Li, Y., Schurman, M. I., Desyaterik, Y.**, Malm, W. C., **Collett Jr., J. L.**, Schichtel, B. A. (2016) Oil and gas impacts on air quality in federal lands in the Bakken region: an overview of the Bakken Air Quality Study and first results. *Atmos. Chem. Phys.* **16**, 1401-1416, doi:10.5194/acp-16-1401-2016.
3. **Schurman, M. I., T. Lee, Y. Sun**, B. A. Schichtel, S. M. Kreidenweis, and **J. L. Collett Jr.** (2015) Investigating types and sources of organic aerosol in Rocky Mountain National Park using aerosol mass spectrometry, *Atmos. Chem. Phys.* **15**, 737-752, doi:10.5194/acp-15-737-2015.
4. **Li, Y.**, Schichtel, B.A., Walker, J.T., Schwede, D.B., Chen, X., Lehmann, C.M.B., Puchalski, M.A., Gay, D.A., and **Collett, Jr., J.L.** (2016) Increasing importance of deposition of reduced nitrogen in the United States. *Proc. Nat. Acad. Sci.* **113**, 5874-5879, doi:10.1073/pnas.1525736113.
5. **Li, Y.**, Thompson, T.M., Van Damme, M., Chen, X., Benedict, K. B., Shao, Y., Day, D., **Boris, A., Sullivan, A.P.,** Ham, J., Whitburn, S., Clarisse, L., Coheur, P.-F., and **Collett, Jr., J.L.** (2017) Temporal and spatial variability of ammonia in urban and agricultural regions of northern Colorado, United States, *Atmos. Chem. Phys.* **17**, 6197–6213, doi:10.5194/acp-17-6197-2017.

(D) SYNERGISTIC ACTIVITIES

1. Editor-in-Chief, *Journal of the Air & Waste Management Association*, 2022 - present
2. Board Member, Regional Air Quality Council, Colorado. Appointed by Gov. J. Polis, 2019-present
3. American Meteorological Society (AMS) Fellow (2020), Atmospheric Chemistry Committee (Chair 2017-2020, member 2013-2020), Atmospheric Chemistry Conference (Chair 2016, co-Chair 2015, 2017, 2018, 2019, 2020)
4. Member, USDA Agricultural Air Quality Task Force, 2016-2018, 2021-present.
5. International Fog and Dew Association (Conference Chair, 9th Intl. Conference on Fog, Fog Collection and Dew, Fort Collins, Colorado, 2022; Board Member, 2016-2019; Scientific Chair, 6th Intl. Conference on Fog, Fog Collection, and Dew, Yokohoma, Japan, 2013)
6. American Association for Aerosol Research: Board of Directors (2006-2009), Chair Awards Committee (2017-2018), Chair Atmospheric Aerosols Working Group (1997-98), Annual Meeting Program Committee (1998 and 2001), Tutorial Program Chair (2001), Education Committee Chair (2002), Finance Committee (2011-2014)
7. Advisor to 18 PhD students, 32 MS students and 19 postdoctoral fellows at University of Illinois and Colorado State University

Biographical Sketch
Emily V. Fischer

(A) PROFESSIONAL PREPARATION

University of British Columbia	*Atmospheric Sciences*	BSc, 2002
University of New Hampshire	*Earth Sciences*	MS, 2005
University of Washington	*Atmospheric Science*	PhD, 2010
Harvard University, NOAA Postdoctoral Fellow	*Atmospheric Chemistry*	Fellow, 2011-2013

(B) APPOINTMENTS

2019 – present	Associate Professor, Colorado State University (CSU), Atmospheric Science Department, Affiliate Faculty School of Global Environmental Sustainability (SoGES), Fort Collins, CO
2013 – 2019	Assistant Professor, CSU, Atmospheric Science Department, Fort Collins, CO
2004 - 2006	Staff Scientist, Mount Washington Observatory, North Conway, NH

(C) PRODUCTS

(i) Most closely related (5)

Bold indicates Fischer Group Members

1. **Pollack, I. B.**, D. Helmig, **K. O'Dell**, and **E. V. Fischer** (2021), Seasonality and source apportionment of non-methane volatile organic compounds at Boulder Reservoir, Colorado, between 2017 and 2019, *Journal of Geophysical Research: Atmospheres*, 126, e2020JD034234. https://doi.org/10.1029/2020JD034234.
2. **Pollack, I. B.**, D. Helmig, **K. O'Dell**, and **E. V. Fischer** (2021), Weekend-weekday implications and the impact of wildfire smoke on ozone and its precursors at Boulder Reservoir, Colorado between 2017 and 2019, *Journal of Geophysical Research: Atmospheres*, 126, e2021JD035221. https://doi.org/10.1029/2021JD035221.
3. **Lindaas, J. D.** K. Farmer, I. B. Pollack, A. Abeleira, F. Flocke, and **E. V. Fischer** (2019), Acyl peroxy nitrates link oil and natural gas emissions to high ozone abundances in the Colorado Front Range during summer 2015, *J. Geophys. Res.*, 124, https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2018JD028825.
4. **Zaragoza, J.**, S. Callahan, E. E. McDuffie, J. Kirkland, P. Brophy, L. Durrett, D. K. Farmer, Y. Zhou, B. Sive, F. Flocke, G. Pfister, C. Knote, A. Tevlin, J. Murphy and **E. V. Fischer**, (2017), Observations of acyl peroxy nitrates during the Front Range Air Pollution and Photochemistry Experiment (FRAPPE), *J. Geophys. Res. Atmos.*,122, https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2017JD027337.
5. Abeleira, A., **Pollack, I.** B., Sive, B., Zhou, Y., **Fischer, E. V.**, and Farmer, D. K. (2017), Source Characterization of Volatile Organic Compounds in the Colorado Northern Front Range Metropolitan Area during Spring and Summer 2015, *J. Geophys. Res. Atmos.*, 122, https://doi.org/10.1002/2016JD026227.

(ii) Other related products (5)

1. **Tzompa-Sosa, Z., and E. V. Fischer** (2020), Impacts of emissions of C_2-C_5 alkanes from the oil and gas sector on ozone and other secondary species, *Journal of Geophysical Research,* 125, e2019JD031935. https://doi.org/10.1029/2019JD031935.

2. **Lindaas, J.**, D. K. Farmer, I. B. Pollack, A. Abeleira, J. Zaragoza, F. Flocke, R. Roscioli, S. Herndon, and **E. V. Fischer** (2017), The impact of aged wildfire smoke on atmospheric composition and ozone in the Colorado Front Range in summer 2015, *Atmos. Chem. Phys.*, https://doi.org/10.5194/acp-2017-171.
3. **Tzompa-Sosa, Z.** A., E. Mahieu, B. Franco, C. A. Keller, A. Turner, D. Helmig, A. Fried, D. Richter, P. Weibring, J. Walega, T. I. Yacovich, S. C. Herndon, D. R. Blake, F. Hase, J. W. Hannigan, S. Conway, K. Strong, M. Schneider, and **E. V. Fischer** (2017), Revisiting global fossil fuel and biofuel emissions of ethane, *J. Geophys. Res. Atmos.*, 122, https://doi.org/10.1002/2016JD025767.
4. **Tzompa-Sosa, Z.**, D. Richter, B. Henderson, K. Travis, C. Keller, E. Mahieu, B. Franco, M. Estes, D. Helmig, A. Fried, P. Weibring, J. Walega, D. Blake, J. Hannigan, I. Orgega, S. Conway, K. Strong, and **E. V. Fischer** (2019), Atmospheric implications of large light alkane emissions from the U.S. oil and gas industry, *J. Geophys. Res.*, 124. https://doi.org/10.1029/2018JD028955.
5. McDuffie, E. E., Edwards, P. M., Gilman, J. B., Lerner, B. M., Dubé, W. P., Trainer, M., Wolfe, D. E., Angevine, W. M., deGouw, J., Williams, E. J., Tevlin, A. G., Murphy, J. G., **Fischer, E. V.**, McKeen, S., Ryerson, T. B., Peischl, J., Holloway, J. S., Aikin, K., Langford, A. O., Senff, C. J., Alvarez, R. J., Hall, S. R., Ullmann, K., Lantz, K. O., Brown, S. S. (2016). Influence of oil and gas emissions on summertime ozone in the Colorado Northern Front Range. *J. Geophys. Res. Atmos, 121*(14), 8712-8729, https://doi.org/10.1002/2016JD025265.

(D) SYNERGISTIC ACTIVITIES

1. American Meteorological Society (AMS) Atmospheric Chemistry Committee (January 2019 – present); organizes sessions and student presentation judging for national meeting; received the AMS Atmospheric Chemistry Committee's Outstanding Early Career Scientist Award in 2020.
2. Science Moms (sciencemoms.com) cofounder. Climate change education for parents.
3. PI for (2021/2022 Transformation and Transport of Ammonia ($TRANS^2AM$) field program designed to measure emissions from intensive animal husbandry in the Colorado Front Range.
4. Instructor, CSU, ATS 716, *Air Quality Characterization,* course is centered on a service-learning project where students partner with a community to design, plan, and execute a hypothesis-driven air pollution measurement campaign over the course of the semester. Course includes the use of SPODs and whole air samples.
5. Multiple awards related to excellence in science, service, and mentoring activities including the CSU Graduate Advising and Mentorship Award (2018), the CSU Department of Atmospheric Science Professor of the Year Award (2019), CSU Monfort Professorship (2021), the American Geophysical Union (AGU) James B. Macelwane Medal (2019), Science News 10 Scientists to Watch (2020), Jon C. Graff, PhD Prize for Excellence in Science Communication (2021)

GORDON E. PIERCE

34532 Golden Gate Canyon Road
Golden, CO 80403
Phone: (303) 692-3238
Cell: (303) 919-4522
gordon.pierce@state.co.us

PROFESSIONAL EXPERIENCE

Program Manager

Colorado Department of Public Health and Environment, Air Pollution Control Division
Denver, Colorado; December 2008 – present

- Supervise the Technical Services Program
  - Ambient air monitoring for criteria and air toxic pollutants
  - Visibility monitoring
  - Air permit and regional modeling
  - Forecasting and meteorology
  - Prescribed fire/smoke management
- Coordinate air monitoring studies
- Prepare reports and presentations
- Respond to data requests from staff, other agencies and the public
- Respond to legislative requests
- Participate on technical committees
- Develop and maintain grants and budgets

Environmental Protection Specialist

Colorado Department of Public Health and Environment, Air Pollution Control Division
Denver, Colorado; September 1988 – November 2008

- Supervised air monitoring and data processing staff
- Performed air toxics and other air pollutant monitoring work
- Located and installed new air monitoring sites
- Repaired and calibrated air pollution monitoring equipment
- Processed and interpreted air pollution monitoring data
- Prepared reports and presentations
- Responded to data requests from staff, other agencies and the public
- Developed grant and budget proposals

Engineering/Physical Science Aide

Colorado Department of Public Health and Environment, Air Pollution Control Division
Denver, Colorado; January 1987 – August 1988

- Performed air toxics and other air pollutant monitoring work
- Located and installed new air monitoring sites
- Repaired and calibrated air pollution monitoring equipment

- Processed and interpreted air pollution monitoring data
- Prepared reports and presentations

Unit Manager, Mud Logger
G.E.O. Incorporated
Aurora, Colorado; August 1985 – December 1986

- Supervised well-site mud logging trailer and staff
- Performed drill cuttings and borehole gas analyses
- Drafting and interpreting mud log records
- Prepared and provided reports to company geologists
- Repaired and calibrated analysis equipment

EDUCATION

Master of Science, University of Colorado at Denver, Colorado, May 2005
Major: Environmental Science
Option: Air Quality

Bachelor of Science, Colorado School of Mines, Golden, Colorado, May 1985
Major: Geological Engineering

OTHER PROFESSIONAL AFILIATIONS

- National Association of Clean Air Agencies (NACAA) representative for the EPA Interagency Monitoring of Protected Visual Environments (IMPROVE) Steering Committee
- Western States Air Resources Council (WESTAR) representative for the National NACAA/EPA Monitoring Steering Committee
- Western Regional Air Partnership (WRAP) Board State Co-Chair
- Steering Committee Member for the Intermountain West Data Warehouse/Western Air Quality Study

Lea Schneider
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PROFESSIONAL EXPERIENCE

Environmental Health Planner
Larimer County Department of Environmental Health – Fort Collins, CO
October 2016 – Present

- Plans, directs, supervises, budgets and coordinates the Larimer County Health Department's environmental health programs for environmental planning, air quality and zoonotic disease.
- Prepares and manages the Colorado Department of Public Health and Environment Air Pollution Control Division annual contract to perform air pollution monitoring activities. Activities include conducting inspections, records review and compliance evaluations of sources of air pollution emissions; responding to and investigating stationary source complaints; administering an open burning permit program; conducting routine and complaint inspections to comply with the chlorofluorocarbon (CFC) Program; conducting air monitoring site visits to perform operation, maintenance and repairs on gaseous analyzers, meteorological sensors, and particulate samplers.
- Review land use development proposals and complex environmental studies for Larimer County and incorporated municipalities applying environmental public health principles.
- Represents the department and prepares reports and presentations for planning committees and commissions including the county Board of Health, Board of Commissioners, city and town councils, Colorado Department of Public Health and Environment, and other outside agencies.
- Participates in the development and implementation of goals, objectives, policies, plans, and priorities for the Health Department as a member of the Department's Management Team, as well as the Environmental Health Services Management Team.
- Participates in the development and implementation of community, county and regional goals, strategic plans, master plans and policy.
- Analyzes and interprets current ordinances, regulations, and statutes; monitors proposed state and federal legislation and regulations; recommends amendments and changes to the corresponding governing body.
- Responds to local and regional environmental and public health emergencies when the Health Department is activated for response. Most recent efforts were two years of incident command response for the COVID-19 pandemic. Lead role on the planning team and field work for testing and vaccine site acquisition and operation, organizing vehicle and pedestrian traffic movement at sites, coordinating and managing volunteers for each location.
- Acts as a resource or expert in program areas, providing technical guidance to less experienced staff in environmental health work that may include water quality, air quality, food safety, solid and hazardous waste, childcare sanitation, institutions, recreation facilities, epidemiology, zoonotic diseases, emergency preparedness and response, and public health nuisance issues.
- Performs all relevant types of environmental health inspections and investigation duties and enforces regulations related to the environmental health programs

Environmental Health Specialist II
Larimer County Department of Environmental Health – Fort Collins, CO
April 2003 – October 2016

- Lead plans examiner for proposed and existing retail food establishments, manufacturers, schools and childcare facilities, applying environmental health practices and composing corresponding reports.
- Former Chair of the statewide Colorado Plan Review Committee coordinating State Health and County Health Department plans examiners for monthly meetings.

- Responded to emergency incidents within the County and neighboring counties as needed, including tornado (Windsor, 2008), hazardous waste spills, structure fires, large scale vaccination clinics (H1N1 2009, meningococcal 2010), wildfire (High Park 2012) and flood (Colorado Front Range Flood 2013), as well as participation in associated public outreach events at citizen disaster information centers.
- Primary coordinator of the Environmental Health Department's internship program with supervisory responsibilities of networking with Colorado State University, candidate selection, training, discipline, and evaluation.
- Provided training and technical assistance to the public and industry professionals via presentations, individual interaction and dissemination of applicable literature, on Environmental Health topics.
- Assisted in the training of new staff within the office and field setting, and represented as acting supervisor when necessary.
- Conducted food safety and sanitation inspections and necessary follow-up inspections for established retail food operations, manufacturers, temporary events and childcares, to ensure compliance with the rules and regulations promulgated by the State of Colorado.
- Performed epidemiological screenings and disease outbreak investigations and associated reports.

Environmental Health Generalist
Summit County Department of Environmental Health – Frisco, CO
November 2000 – December 2002

- Reviewed on-site wastewater treatment system (OWTS) and well designs for new construction and repairs, evaluated soil profiles, conducted site assessments, issued OWTS and well permits and inspected systems during installation to ensure compliance with the State and local county wastewater and water quality regulations.
- Inspected private and noncommunity groundwater systems for compliance with the Colorado Primary Drinking Water Regulations and the State of Colorado Design Criteria for Potable Water Systems and generated the resulting reports.
- Reviewed land use proposals, building permit applications and food service plans.
- Enforced compliance of State of Colorado rules and regulations for retail food establishments.
- Investigated public reports and complaints regarding food borne illnesses, sanitation, housing, on-site wastewater treatment systems, hazardous waste disposal and spills.

EDUCATION

Bachelor of Science in Environmental Health
Colorado State University – Fort Collins, CO
August 1996 – May 2000

RELATED PROFESSIONAL DEVELOPMENT & AFFILIATIONS

Registered Environmental Health Specialist, October 2012– present
Visible Emissions Training & EPA Method 9 Certification, 2017
Air & Waste Management Association, 2021 - present
American Planning Association, 2017 – present
National Environmental Health Association, 2012 – present
Colorado Environmental Health Association, 2000 – present

Mindy Hill

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SUMMARY

Education leader and professional administrator with over 30 years of experience connecting communities and directing programs, grants, and initiatives that inspire and improve connection, health and wellbeing for ourselves, our community, and especially for the benefit of the natural world we are trying to protect.

EXPERIENCE

Center for Environmental Justice, CSU- Program Manager 2021- Present

Dedicated to growing the CEJ into an organization that centers environmental justice within curriculum, research, and engagement across disciplines, and throughout the community.

- ***Events Management-*** Responsible for planning and executing conferences, community events, and academic publication events.
- ***Organizational Development-*** Building diverse and inclusive teams of researchers and community partners to advance equity and social justice. Pursue funding from individuals, community organizations, and state and federal funding agencies.
- **Program Administration-** Supervise employees, interns, and volunteers. Coordinate leadership meetings, trainings, and research agendas. Develop partnerships with faculty to embed and infuse EJ content in curricula.

San Carlos School District, CA- Wellness Director 2012- 2021

- ***School Climate & Safety-*** Responsible for MTSS and Mental Health planning; Diversity, Equity & Inclusion training; CPR training; Emergency Response Protocols; Comprehensive Safety Planning; COVID-19 response coordination.
- ***Physical Health-*** Managed the district's National School Lunch program; coordinated nutrition education programming; managed PE vendor contracts; organized resources for staff including a daily boot camp, managed school nurses and health education programs, including COVID-19 facilities maintenance training and protocols.
- ***Mental Health-*** Coordinated and expanded provision of case management, 1:1 counseling, CHAC services, and District's Suicide prevention policies and procedures including the crisis response teams; applied for and received the San Mateo County Mental Health Services grant to coordinate Social & Emotional Learning curriculum, training for Community Resilience Management, and other mental health services; implemented district-wide data collection and analysis to inform program development.
- ***Community Engagement-*** Directed multiple parent education efforts, including development of the SCSD Pandemic Care and Support website; coordinated multiple partnerships and initiatives with Sequoia Healthcare District, San Mateo County Office of Education, San Mateo County Health Services, City of San Carlos, SAMTRANS; and the City and County Association of Governments.
- ***Grant Writer and Program Manager-*** Wrote and managed multiple grants totaling ~$700,000 annually, including program implementation, data collection, and reporting.
- ***Environmental Sustainability-*** Developed partnerships with Strategic Energy Innovations, Climate Corps/AmeriCorps, SAMTRANS, SRTS, and C/CAG to reduce GHG emissions expand active and public transportation, improve community walkability; implemented district Sustainability Dashboard; created training and partnerships to reduce waste by 25%; supervised Energy Manager throughout installation of all the district's solar panels; coordinated community partnerships for climate resiliency including a $97,000 grant; co-developed and taught a sustainability course for 2nd-8th graders; implemented sustainability curricula; facilitated One Planet Schools projects.
- ***Outdoor Learning-*** Managed the Arroyo School Garden; implemented partnership with Each Green Corner to create food-producing outdoor spaces and maintain school gardens; implemented training for teachers to pivot to outdoor instruction; coordinated infrastructure to transition classes from indoors to outdoors during the COVID-19 pandemic.

Stanford University Graduate School of Education, CA- Writer & Event Planner 2011

- ***Center for Education Policy and Analysis (CEPA)-*** Partnered with department faculty and university development programs to write white papers and documents to communicate the impact of research on wider community efforts; created the first annual CEPA Supper to showcase research in a fundraising event.
- ***Center to Support Excellence in Teaching (CSET)-*** Collaborated with department faculty and university development to write articles, and other collateral to support integration of research among teachers.

Sierra Club, Loma Prieta Chapter Coordinator, CA 2009-10

- ***Community Volunteer Coordinator-*** Partnered with affiliated groups and Sierra Club teams match volunteers to current projects, to expand pool of volunteers, and increase outreach programs.

- ***Communications Management-*** Directed all chapter communications including website updates, political communications, executive director communications, newsletters, and daily phone and email communications.
- ***Reservations Management-*** Coordinated and managed reservations system for Sierra Club outdoor sites and volunteer activities.

TEAM Fort Collins, Associate Director, CO 2003-2006

- ***Community Coalition Management-*** Lead multiple inter-agency efforts between healthcare, law enforcement, Poudre School District, Colorado State University, and Chamber of Commerce to raise awareness, conduct research and build local capacity.
- ***Project Management-*** Directed the $500,000 Safe and Drug Free Schools grant and supervised 3 staff to support the programs involved.
- ***Partnership Development-*** Coordinated local partnerships to strengthen the community coalition to prevent drug and alcohol use.
- ***Fundraising-*** Created and implemented the first Simply Red fundraising event, the first Horsetooth 10K swim for TEAM; and other smaller fundraising activities for the organization.
- ***Drug and Alcohol Abuse Prevention Educator-*** Taught prevention curriculum throughout Poudre School District as part of TEAM Fort Collins' community coalition work.

Educator- WA, OR, New Zealand, AZ, CO 1992-2000

- ***Environmental Education Program Management-*** Managed and implemented grant to become one of the first Model Schools for Environmental Education in the state of Washington; lead team of Bellingham School District educators to build native plant garden for community to source native plants for landscaping; facilitated water quality testing of Padden Creek; and built community mural to commemorate the indigenous history in the community; built weather station, school gardens and managed community volunteer projects for the Environmental Middle School in Portland, OR.
- ***Curriculum Development Specialist-*** Partnered with local experts from the North Cascades Institute to develop a statewide curriculum based on environmental concepts; developed anti-bullying curriculum and training for Auckland, NZ schools.
- ***Grant Writer-*** Washington Model Schools for Environmental Education
- ***Teacher-*** Public School teacher in grades K-8

PROFESSIONAL DEVELOPMENT

EDUCATION:

- Master of Arts in Teaching and School Administrative Credential (1996), Lewis and Clark College
- Bachelor of Arts in Psychology and Teaching Credential (1992), University of Colorado

VOLUNTEER:

- Board Member, Secretary- Healthy Cities Tutoring (2010-20)
- Board Member, San Carlos AYSO and Chair of Women IN Soccer (WINS) (2007-10)
- Volunteer, San Carlos Education Foundation (2007-18)
- Volunteer, Canopy (2017-20)
- Volunteer, Each Green Corner (2019-20)

RECOGNITION:

- 2018 Recipient of the California Green Ribbon Schools Award-Gold Level Designation
- 2018 Recipient of the Green California Leadership Award for Green School
- Member of NCAA CU Ski Team-1991 National Champions

ADDITIONAL INTERESTS:

- Avid reader, river rafter, sailing first mate, gardening enthusiast, and lover of all things green and growing

Jason C. Komes

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Profile

Environmental Scientist with 19 years of environmental experience in program development, policy implementation, technical field work, and environmental liability management.

Program and Policy Experience

AIR QUALITY

- Conducted policy review
- Participated in public forums and engagement opportunities
- Implemented case management tools and managed complaint and case data
- Developed and implemented outreach and educational materials
- Reviewed technical reports and proposals
- Reviewed existing municipal code for clarity and applicable enforcement options

WASTE DIVERSION

- Managed an approximate annual diversion of 2.2MM pounds of recyclable waste and over 330,000 pounds of organic waste from the local landfill through programs including recycling and organic waste collection, scrap metal recycling, latex paint recycling, used tire/rubber products recycling, used fryer oil/grease collection, and coordinating "zero waste" community events
- Increased measurable diversion from approximately 34% to 48% during my employment at Keystone Resort
- Coordinated with our internal purchasing department to reduce single use disposables with durable alternatives

ENERGY REDUCTION

- Managed the replacement of 2,000 incandescent lamps with efficient LED lighting
- Applied for and received Xcel Energy prescriptive rebates for lighting retrofits and replacements
- Coordinated with Corporate Energy Manager to identify potential new projects and partnerships
- Created and disseminated monthly energy usage update for upper management that data collected from natural gas, electricity, and fuel usage resources

COMMUNITY INVOLVEMENT

- Routinely involved in public speaking and internal department meetings to discuss our sustainability efforts and promote community involvement activities
- Preparation of a quarterly newsletter highlighting achievements, challenges, and upcoming activities
- Implemented employee environmental tours and event schedules including visits to a landfill, a high-volume automated materials recovery facility, a commercial composting facility, a mine reclamation project, and a scrap metal processing facility

Technical Experience

- Prepared Phase I/II ESAs in northern Colorado, Utah and Wyoming in accordance with ASTM E1527-05
- Prepared and implemented work plans, Risk-Based Assessments, Corrective Action Plans, Remedial Action Plans, and remediation system design
- Provided oversight of hollow stem auger and direct-push soil sampling activities, monitoring well installation, remediation system installation, enhanced fluid recovery activities, feasibility testing of air sparge/soil vapor extraction technologies, enhanced bio-remediation injections
- Coordinated and implemented phytoremediation technology and strategies

Management Experience

- Created and managed budgets ranging from $10K to over $50MM
- Developed and maintained goal oriented and success driven relationships
- Prepared grant proposals, bids, and Requests for Proposals
- Coordinated staff and subcontractors
- Prepared and reviewed technical reports, health and safety plans, and other deliverables
- Implemented project tracking tools
- Regularly engaged with Federal, State, local regulatory agencies and other key stakeholders

Consulting/Project Experience

RETAIL AGRICULTURAL PRODUCTS CENTERS IN US AND CANADA

Managed the assessment, environmental risk evaluation, and liability management of existing and former retail ag centers across the US and Canada. This work included

RETAIL UST SITES IN CALIFORNIA

Managed the assessment, remediation and case closure of of a portfolio of retail UST sites located in southern and central California. The work performed includes direct push soil and groundwater sampling, split spoon sampling, monitoring well installation, UST removal activities, preparation of CAPs, RAPs, Human Health Risk Assessments, air monitoring, remediation system design and system start-up. Regularly interfaced with regulatory agencies in Orange County, San Luis Obispo County and the California Regional Water Quality Control Board.

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY LUST PROGRAM

Provided construction oversight of the installation of air sparge/soil vapor extraction systems, an oxygen diffuser system, and/or the completion of enhanced bioremediation injections for 20 former gas stations sites in Casper, Wyoming.

Employment History

CASS COUNTY HEALTH DEPARTMENT, LOGANSPORT, IN
Environmental Health Specialist I, 1999-2000

TERRACON, FORT COLLINS, CO
Environmental Scientist/Project Manager, 2000-2005

SECOR INTERNATIONAL INC., CYPRESS, CA/SAN LUIS OBISPO, CA
Project Scientist, 2005-2009

CROP PRODUCTION SERVICES, INC., LOVELAND, CO
Environmental Project Manager, 2009-2011

VAIL RESORTS INC., KEYSTONE RESORT, KEYSTONE, CO
Environmental Manager/Sustainability Coordinator, 2012-2015

LARIMER COUNTY, SOLID WASTE DEPARTMENT, FORT COLLINS, CO
Environmental Education Assistant, 2016-2017

CITY OF FORT COLLINS, ENVIRONMENTAL SERVICES DEPARTMENT, FORT COLLINS, CO
Waste Reduction and Recycling Specialist, 2016-2018

CITY OF FORT COLLINS, ENVIRONMENTAL SERVICES DEPARTMENT, FORT COLLINS, CO
Air Quality Specialist, 2019 (Current)

Education

PURDUE UNIVERSITY, WEST LAFAYETTE, INDIANA

Bachelor of Science, Environmental Science May 1999